

California Environmental Protection Agency



ARB Approved

Installation, Operation and Maintenance Manual

**For the EMCO Wheaton Retail Phase I Vapor Recovery System
As Certified by Executive Order VR-105-C**

NOTICE:

The **ARB Approved Installation, Operation and Maintenance Manual for the EMCO Wheaton Retail Phase I EVR System** describes the tools and methods required to install and maintain the EMCO Phase I EVR System. Unless specified otherwise, only technicians that are trained and certified by EMCO (i.e. EMCO Certified Technicians) are able to perform installation, maintenance or repairs of components manufactured by EMCO or the warranty will be void. A list of EMCO certified technicians can be viewed on EMCO Wheaton Retail's website at www.emcoretail.com.

To schedule a training class, EMCO can be contacted at the following:

Jose E. Rodriguez
Manager of Technical Services & Support
EMCO Wheaton Retail
Phone: 619-421-1743
Email: JERodriguezSD@aol.com

Only technicians that are trained and certified by FFS (i.e. FFS Certified Technicians) are able to perform installation, maintenance or repairs of the PV-Zero, manufactured by FFS, or the warranty will be void. A list of FFS Certified Technicians can be viewed at <http://www.franklinfueling.com/service/>

To schedule a training class, FFS can be contacted at the following:

Stan Brodecki, Allan Busch, or Steve Langlie
Enhanced Vapor Recovery Systems
Franklin Fueling Systems
Phone: 800-225-9787
Email: brodecki@franklinfueling.com
busch@franklinfueling.com
langlie@franklinfueling.com

It is the responsibility of each EMCO and/or FFS Certified Technician to be familiar with the current requirements of state, federal and local codes for installation and repair of gasoline dispensing equipment. It is also the responsibility of the EMCO and/or FFS Certified Technician to be aware of all necessary safety precautions and site safety requirements to assure a safe and trouble free installation.

Summary of Guidelines for Maintenance Activities Required of the EMCO Wheaton Retail Phase I Vapor Recovery System¹



Summary of Guidelines for Maintenance Activities Required of the Emco Wheaton Retail Phase I Vapor Recovery System

Component	Interval
Pressure/ Vacuum Vent Valve: FFS Model PV-Zero	Annually
<ol style="list-style-type: none">1. Visual inspect housing, pipe, fittings and rain cap for obvious signs of damage, missing parts or fluid leaks.2. Visually inspect the rain cap, from ground level, for signs of birds nests or insect activity.3. Every year, drain and inspect the fill fluid per the Fluid Inspection Procedure.	
Pressure/ Vacuum Vent Valve: Husky Model 5885	Annually
<p>Annually inspect the P/V vent valve for foreign objects without removing the P/V vent valve from the vent pipe by using the following procedure:</p> <ol style="list-style-type: none">1. Remove the screws that hold the top cover on.2. Remove any debris that might be sitting inside the lower cover.3. Check the drain holes in the lower cover for blockage.4. The two (2) screens should not be removed.5. Reinstall the top cover and retaining screws.6. Tighten the screws firmly.	
Spill Containment: Emco Wheaton Retail A1004EVR	Quarterly & After Each Delivery
<ol style="list-style-type: none">1. Quarterly verify that the inside of the A1004EVR Spill Containment bucket is free of all dirt, gravel, debris, etc. Should cleaning be required, wipe the inside wall and bottom of the A1004EVR Spill Containment bucket using soapy water and a disposable towel.2. After each delivery, the station operator must remove any standing gasoline from the inside of the A1004EVR Spill Containment. If the gasoline does not drain, refer to the #494118 drain valve preventive maintenance instructions.	
Drain Valve Assembly: Emco Wheaton Retail 494118	Quarterly
<ol style="list-style-type: none">1. Quarterly test the operation of the drain valve assembly by pulling up on the chain located inside the A1004EVR Spill Containment bucket.2. If gasoline does not drain when actuating the drain valve assembly perform steps (a) through (d) below.<ol style="list-style-type: none">a) Remove the filter from the drain valve. Using a pair of needle nose pliers, remove both cotter pins and disassemble the linkage from the top of the drain valve. Soak the filter in soapy water and use high pressure air to clean and remove all debris, replace the filter p/n 569131 only if the screen is damaged.b) Using the Emco Wheaton Retail p/n 493820 Drain Wrench unscrew the drain valve and remove from the bottom of the A1004EVR Spill Containment bucket. Soak the drain valve in soapy water and use high pressure air to clean and remove all debris, replace the flat gasket p/n 567108 before re-installing.	

¹ These maintenance requirements shall not circumvent use of the manufacturer's maintenance instructions. Maintenance contractors or owner/operators shall refer to the manufacturers complete installation and maintenance instructions found here for the EMCO Wheaton Retail System to ensure that all maintenance and torque requirements are met.

**Summary of Guidelines for Maintenance Activities Required of the
Emco Wheaton Retail Phase I Vapor Recovery System**

- c) To re-install the drain valve assembly, refer to installation instructions steps 3 through 5. Verify leak tightness integrity of the drain valve assembly by performing CARB test procedure TP-201.1D.
- d) If the drain valve assembly fails to pass CARB test procedure TP-201.1D, replace with new and refer to installation instructions steps 1 through 5.

Dust Caps:

Annually

Emco Wheaton Retail A0097-005 Product

1. Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

Emco Wheaton Retail A0099-X Vapor
X=002, no chain or 003, with chain

1. Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

All “non-EMCO” Dust Caps

Annually

1. Visually inspect the seal in cap and replace if damaged or missing.

Product Adapter:

Annually

Emco Wheaton Retail A0030-124S

Static Torque Test:

1. Using the Emco Wheaton Retail p/n 494240 Swivel Adapter Torque Wrench, annually verify the static torque of the swivel adapter by performing CARB test procedure TP-201.1B.
2. If the swivel adapter fails to meet the static torque test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301.

Leak Tightness Integrity Test:

1. Annually verify leak tightness integrity of the swivel adapter by performing CARB test procedure TP-201.1D.
2. If the swivel adapter fails to meet the leak tightness integrity test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301 or gasket p/n 568793.

Vapor Adapter:

Annually

Emco Wheaton Retail A0076-124S

Static Torque Test:

1. Using the Emco Wheaton Retail p/n 494240 Swivel Adapter Torque Wrench, annually verify the static torque of the swivel adapter by performing CARB test procedure TP-201.1B.
2. If the swivel adapter fails to meet the static torque test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301.

Leak Tightness Integrity Test:

1. Annually verify leak tightness integrity of the swivel adapter by performing CARB test procedure TP-201.3.
2. If the swivel adapter fails to meet the leak tightness integrity test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301 or gasket p/n 568793.

**Summary of Guidelines for Maintenance Activities Required of the
Emco Wheaton Retail Phase I Vapor Recovery System**

Extractor Assembly: **None Required**
Emco Wheaton Retail A0079-X
X=043, 044, 050, 051, 052, 150 or 152

1. No preventive maintenance is required for this product.

Riser Seal: **Annually**
Emco Wheaton Retail 494096

1. Annually verify leak tightness integrity of the riser seal by performing CARB test procedure TP-201.1D.
2. If the riser seal fails to meet the leak tightness integrity test requirements, replace the bottom o-ring with the Emco Wheaton o-ring kit p/n 494242.

Drop Tube Overfill Prevention Device: **Annually**
Emco Wheaton Retail A1100EVR

1. Annually, conduct a visual inspection of the flapper valve assembly located inside the A1100EVR Overfill Prevention Valve. Begin by removing the spill containment lid and fill adapter cap, looking down over the fill opening, verify that the flapper valve assembly is open and free of any foreign objects that can block or restrict the flow of gasoline into the underground storage tank during a fuel delivery.
2. Annually, verify leak tightness integrity of the A1100EVR Overfill Prevention Valve by performing ARB test procedure TP-201.1D.

Tank Gauge Port Components: **Annually**

Emco Wheaton Retail A0097-010 Cap

1. Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

Emco Wheaton Retail A0030-014 Adapter

Leak Tightness Integrity Test:

1. Annually verify leak tightness integrity of the probe adapter by performing CARB test procedure TP-201.3.
2. If the probe adapter fails to meet the leak tightness integrity test requirements, replace the gasket p/n 568793.

Summary of Component Torque Values of the EMCO Wheaton Retail Phase I Vapor Recovery System

Component	Tool Required	Torque Value
Pressure/Vacuum Vent Valve: Husky Model 5885, 2-inch threaded	Standard Wrench and socket	20 to 50 ft-lbs.
FFS Model PV-Zero, 3-inch threaded	Chain/Strap Wrench	See Page 4 of the PV-Zero IOM Document for specific instructions.
Spill Containment: Emco Wheaton Retail A1004EVR	Emco Wheaton Retail P/N 494241 Spill Containment Wrench	100 to 150 ft-lbs.
Drain Valve Assembly: Emco Wheaton Retail 494118	Emco Wheaton Retail P/N 493820 Drain Wrench	13 to 15 ft-lbs.
Dust Caps: Emco Wheaton Retail A0097-005 (Product) Emco Wheaton Retail A0099-X (Vapor) X=002, no chain or 003, with chain All "Non-EMCO" Dust Caps	None Required None Required None Required	None Required None Required None Required
Product Adaptor: Emco Wheaton Retail A0030-124S Base Set Screws (part of A0030-124S)	Emco Wheaton Retail P/N A0081-001C Adaptor Wrench Standard wrench and socket	60 to 75 ft-lbs. 20 in-lbs.
Vapor Adaptor: Emco Wheaton Retail A0076-124S Base Set Screws (part of A0076-124S)	Emco Wheaton Retail P/N A0081-001C Adaptor Wrench Standard wrench and socket	60 to 75 ft-lbs. 20 in-lbs.
Extractor Assembly: Emco Wheaton Retail A0079-X X = 043, 044, 050, 051, 150 or 152	Standard chain wrench with a ½ inch off-set	100 to 150 ft-lbs.
Riser Seal: Emco Wheaton Retail 494096 Center Insert (part of 494096)	Emco Wheaton Retail P/N A0081-001C Adaptor Wrench Emco Wheaton Retail P/N 494120 Riser Seal Wrench	80 ft-lbs. 35 to 45 ft-lbs.
Drop Tube Overfill Prevention Device: Emco Wheaton Retail A1100EVR	None Required	None Required
Tank Gauge Port Components: Emco Wheaton Retail A0097-010 Cap Emco Wheaton Retail A0030-014 Adaptor Base Set Screws (part of A0030-014)	None Required Emco Wheaton Retail P/N A0081-001C Adaptor Wrench Standard wrench and socket	None Required 60 to 75 ft-lbs. 20 in-lbs.



**Phase I EVR Equipment Installation Checklist for
 Installing Components per ARB Executive Order VR-105-C**

Date: _____ Signature: _____

Site Location and Name:	Installing Contractor:
Street Address:	Business Address:
City/State:	City/State:
Contact/Phone:	Contact/Phone:
Installing Technician (name):	Technician Certification Number:

Tank Number: _____ Product Grade: _____ Capacity (Gallons): _____

Tank Number: _____ Product Grade: _____ Capacity (Gallons): _____

Tank Number: _____ Product Grade: _____ Capacity (Gallons): _____

Tank Number: _____ Product Grade: _____ Capacity (Gallons): _____

Note: Because this checklist serves a dual purpose as an installation and retrofit checklist, there are some items that will be non-applicable (e.g. cutting riser pipe). The technician should note "N/A" for Non-Applicable in the "Yes/No" box.

Yes/No	Initials	
		1. Is all of the installed equipment for Phase I EVR listed in ARB Executive Order (EO) VR-105-C? Note: All Phase I EVR installed equipment must be listed in EO VR-105-C.
		2. A1004EVR Spill Containment
		2a. Before installing the fill and vapor spill containment buckets verify that the 4 inch diameter riser pipes have been properly sized and threads cut to either NPT or BSP standards.
		2b. Before installing the fill and vapor spill containment buckets verify that the top edges of the 4 inch diameter riser pipes have been filed flat and square with threads free of debris to ensure a proper sealing surface.
		2c. Use a non-hardening, gasoline resistant pipe thread seal compound, manually install the fill and vapor spill containment buckets onto the 4 inch diameter riser pipes and torque between 100 ft-lbs. and 150 ft-lbs.
		3. A1100EVR Overfill Prevention Valve (OPV)
		3a. Has the A1100EVR OPV been properly sized for the required tank burial depth and tank riser pipe length?

Yes/No	Initials	3b. Has the A1100EVR collar and lower drop tube been properly assembled?
Yes/No	Initials	3c. Once completely assembled, has the A1100EVR OPV sealant cured for a minimum of 24 hours before installing into the underground storage tank (UST)?
Yes/No	Initials	A1100EVR OPV Sealant Applied Date: _____ Time: _____
Yes/No	Initials	A1100EVR OPV Installed into UST Date: _____ Time: _____
Yes/No	Initials	3d. Once completely assembled, has the A1100EVR OPV passed the leak tightness integrity test (maximum pressure of 2 inches water column, not to exceed the allowable leak rate of 0.17 CFH) before installing into the UST?
Yes/No	Initials	3e. IMPORTANT: Do not apply a 45 degree miter cut to the very bottom of the lower drop tube.
Yes/No	Initials	3f. Before installing the A1100EVR OPV into the tank fill riser pipe, verify that the sealing O-ring is installed and properly secured.
Yes/No	Initials	4. 494096 Riser Seal
Yes/No	Initials	4a. Before installing the 494096 Riser Seal into the fill side spill containment bucket, Verify that the sealing O-ring is installed and properly secured. Torque to 80 ft-lbs.
Yes/No	Initials	4b. Has the center insert of the 494096 Riser Seal been manually installed and torque between 35 ft-lbs and 45 ft-lbs?
Yes/No	Initials	5. A0030-124S Product and A0076-124S Vapor Rotatable Adaptors
Yes/No	Initials	5a. Before installing the A0076-124S Vapor Rotatable Adaptor, verify that the top edge of the top containment nipple has been filed flat and square with threads free of all debris to ensure a proper sealing surface.
Yes/No	Initials	5b. Before installing the A0030-124S Product and A0076-124S Vapor Rotatable Adaptors onto the fill and vapor spill containment buckets, verify that the flat gaskets are installed and properly secured. Torque between 60 ft-lbs and 75 ft-lbs.
Yes/No	Initials	5c. IMPORTANT: Do not use pipe thread sealant compound when installing the rotatable adaptors.
Yes/No	Initials	5d. Have the A0030-124S Product and A0076-124S Vapor Rotatable Adaptor set Screws been installed with lock-tite model # 222MS and torque to 20 in-lbs?
Yes/No	Initials	6. A0097-005 Product and A0099-002, 003 Vapor Dust Caps (if using caps from a different manufacturer, write in No and skip forward to section 7.

Yes/No	Initials	6a. Before installing the A0097-005 Product and A0099-002, 003 Vapor Dust Caps onto the appropriate rotatable adaptors, verify that the gasket seals are installed and properly secured and are free of tears. If caps fail to comply, replace with new cap.
Yes/No	Initials	7. Product and Vapor Dust Caps from manufacturer other than Emco Wheaton Retail? If Emco Wheaton Retail caps are used, write in No and skip forward to section 8.
Yes/No	Initials	7a. Note the manufacturer and model number for both the product and vapor dust caps used. Refer to the appropriate section of the IOM for installation instructions. Product Cap Manufacturer: _____ Model #: _____ Vapor Cap Manufacturer: _____ Model #: _____
Yes/No	Initials	8. A0030-014 ATG Probe Adaptor
Yes/No	Initials	8a. Before installing the A0030-014 ATG Probe Adaptor, verify that the top edge of the tank riser pipe has been filed flat and square with threads free of all debris to ensure a proper sealing surface.
Yes/No	Initials	8b. Before installing the A0030-014 ATG Probe Adaptor onto the tank riser pipe, Verify that the flat gasket is installed and properly secured. Torque between 60 ft-lbs. and 75 ft-lbs.
Yes/No	Initials	8c. IMPORTANT: Do not use pipe thread sealant compound when installing the ATG probe adaptor.
Yes/No	Initials	8d. Has the A0030-014 ATG Probe Adaptor set screws been installed with lock-tite Model # 222MS and torque to 20 in-lbs?
Yes/No	Initials	9. A0097-010 ATG Probe Adaptor Cap
Yes/No	Initials	9a. Before installing the A0097-010 ATG Probe Adaptor Cap onto the appropriate ATG probe adaptor, verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.
Yes/No	Initials	9b. Has the ATG probe signal cable been properly installed and secured by manually tightening the leak tight connector nut?
Yes/No	Initials	10. A0079 Extractor Assembly
Yes/No	Initials	10a. Has the A0079 Extractor Assembly been manually installed onto the tank Bung collar using a non-hardening, gasoline resistant pipe thread seal Compound and torque between 100 ft-lbs and 150 ft-lbs?
Yes/No	Initials	11. Pressure/Vacuum Vent (PV) Valve

Installation, Operation and Maintenance Manual
EMCO Wheaton Retail Phase I Vapor Recovery System – Executive Order VR-105-C

● Page 4

September 10, 2009

Yes/No	Initials	
		11a. Note the manufacturer and model number for the P/V Valve(s) used. Refer to the appropriate section of the IOM for installation instructions. P/V Valve Manufacturer: _____ Model #: _____
		11b. Verify that there are no more than three P/V Valves installed for each vent stack line and/or manifold at the Gasoline Dispensing Facility (GDF).

Table of Contents

EMCO Wheaton Retail Installation, Operation and Maintenance Manual

NOTICE	ii
Summary of Guidelines for Maintenance Activities Required of the EMCO Wheaton Retail Phase I Vapor Recovery System	iii
Summary of Component Torque Values of the EMCO Wheaton Retail Phase I Vapor Recovery System	vi
Phase I EVR Equipment Installation Checklist for Installing Products per ARB Executive Order VR-105-C	vii

<u>Component</u>	<u>Manufacturer/Model Number</u>	<u>Figure</u>	<u>Page No</u>
Typical Installation (Multi-port Product Side)	EMCO Wheaton Retail	A-1	1
Typical Installation (Multi-port Vapor Side)	EMCO Wheaton Retail	A-2	2
Typical Installation (Direct Burial Product Side)	EMCO Wheaton Retail	A-3	3
Typical Installation (Direct Burial Vapor Side)	EMCO Wheaton Retail	A-4	4
Typical Automatic Tank Gauge Probe Riser Installation	EMCO Wheaton Retail	A-5	5
Spill Container	EMCO Wheaton Retail A1004EVR		
	Multi-port Containment	B-1	6
	Direct Burial Containment	B-2	10
Drain Valve	EMCO Wheaton Retail 494118	C-1	14
Drop Tube Overfill Prevention Device	EMCO Wheaton Retail A1100EVR	D-1	16
Riser Seal	EMCO Wheaton Retail 494096	E-1	24
Product Adaptor	EMCO Wheaton Retail A0030-124S	F-1	26
Vapor Adaptor	EMCO Wheaton Retail A0076-124S	F-2	28
Product Dust Cap	EMCO Wheaton Retail A0097-005	G-1	30

Table of Contents (continued)

<u>Component</u>	<u>Manufacturer/Model Number</u>	<u>Figure</u>	<u>Page No</u>
Vapor Dust Cap	EMCO Wheaton Retail A0099-002, -003	G-2	31
Tank Gauge Port Adaptor	EMCO Wheaton Retail A0030-014	H-1	32
Tank Gauge Port Cap	EMCO Wheaton Retail A0097-010	H-2	34
Extractor Assembly	EMCO Wheaton Retail A0079	I-1	35
Pressure/Vacuum Vent Valve	Husky 5885	J-1	37
Adaptor O-Ring Kit	EMCO Wheaton Retail 494301	K-1	40
Adaptor Gasket Kit	EMCO Wheaton Retail 409628	K-2	44
Installation and Maintenance Tools	EMCO Wheaton Retail	L-1	45
Warranty Card	EMCO Wheaton Retail	M-1	46
Pressure/Vacuum Vent Valve	FFS PV-Zero	N-1	47
Dust Caps	OPW 634LPC (product) and 1711LPC (vapor)	O-1	59
Dust Caps	CompX Security Products CSP1-634LPC (product) CSP2-634LPC (product) CSP3-1711LPC (vapor) CSP4-1711LPC (vapor)	P-1	60

Figure A-1

**Typical Product Side Installation of a Multi-port Configuration
 Of the EMCO Wheaton Retail System**

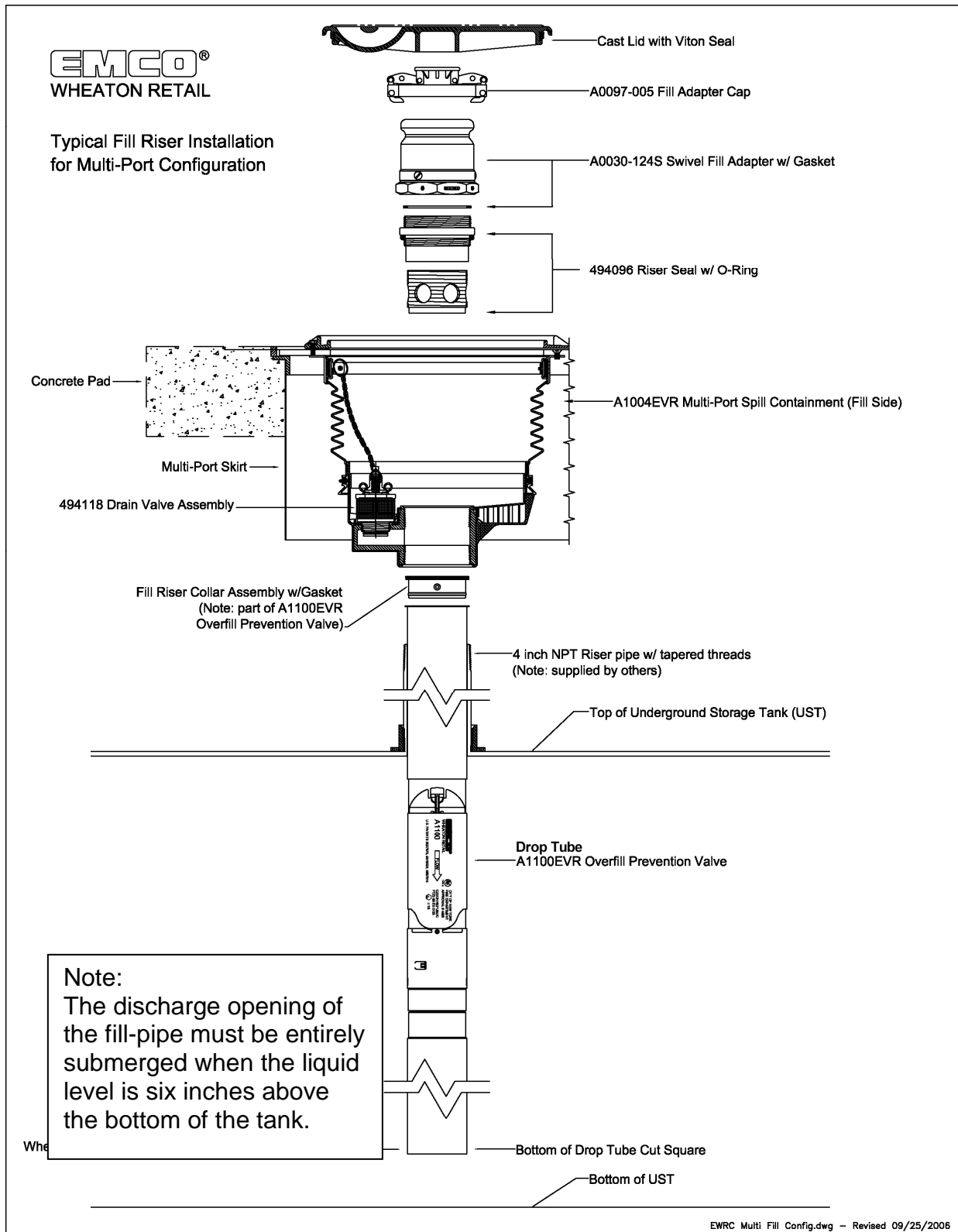


Figure A-2

Typical Vapor Side Installation of a Multi-port Configuration
Of the EMCO Wheaton Retail System

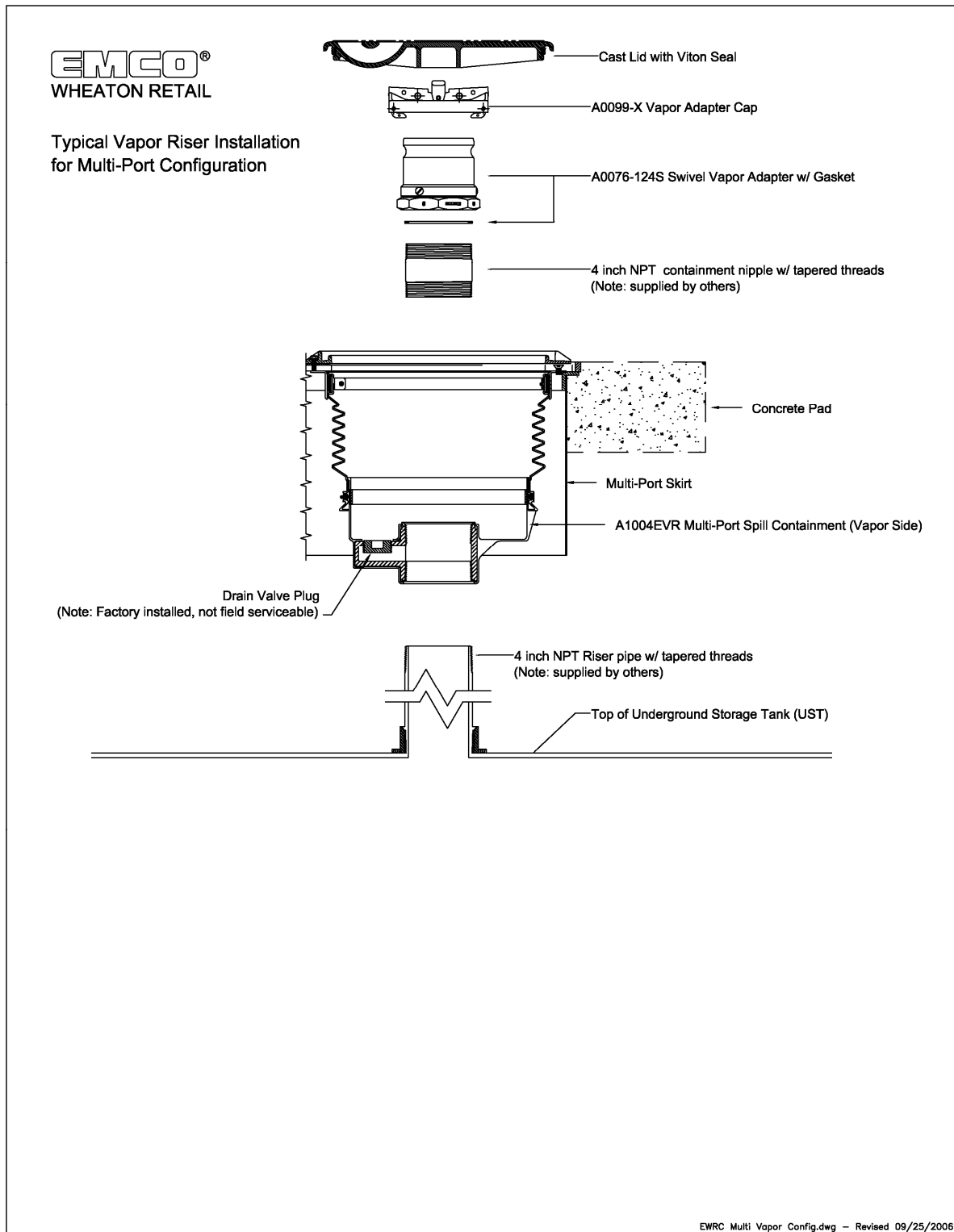


Figure A-3

**Typical Product Side Installation of a Direct Burial Configuration
 Of the EMCO Wheaton Retail System**

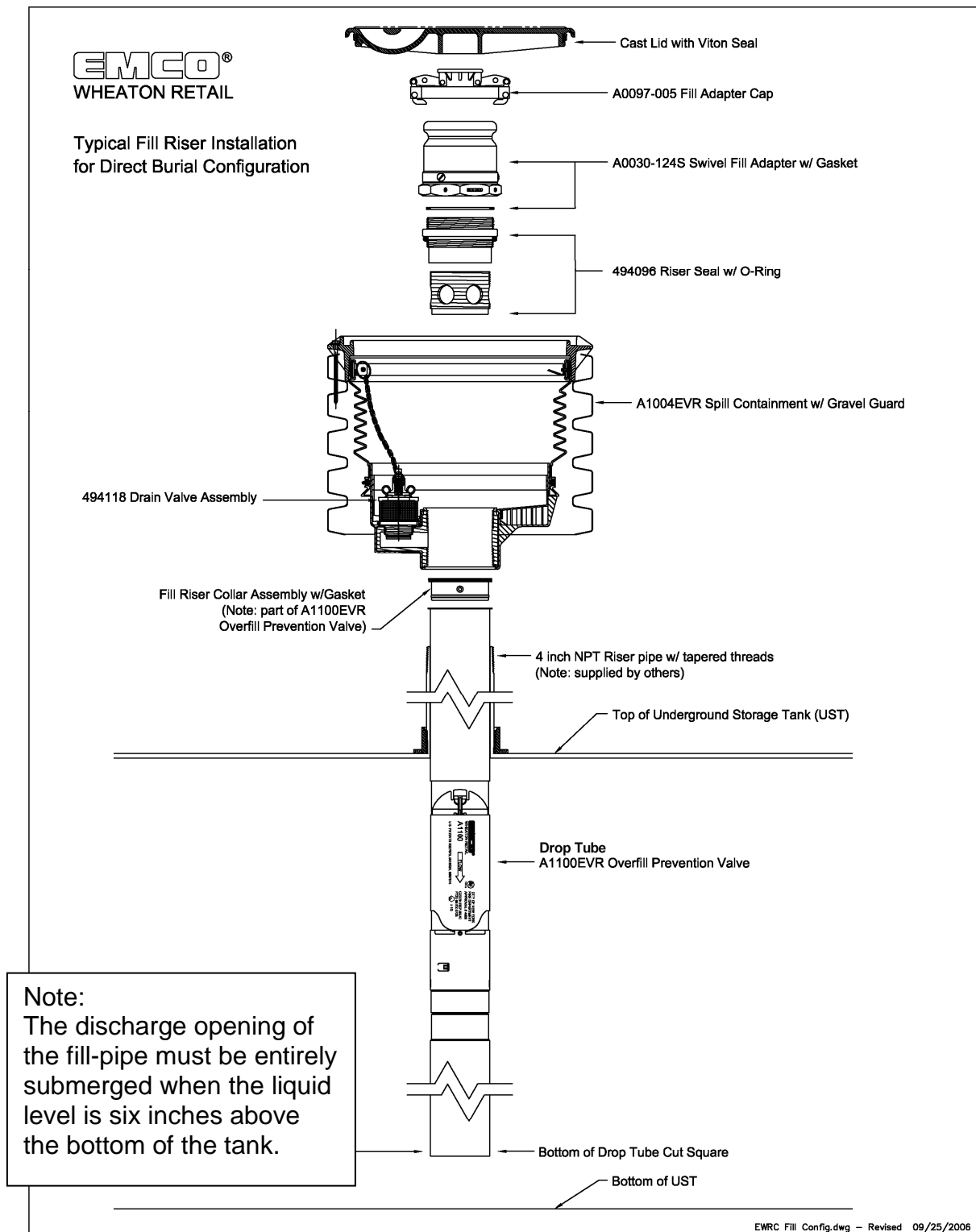


Figure A-4

**Typical Vapor Side Installation of a Direct Burial Configuration
Of the EMCO Wheaton Retail System**

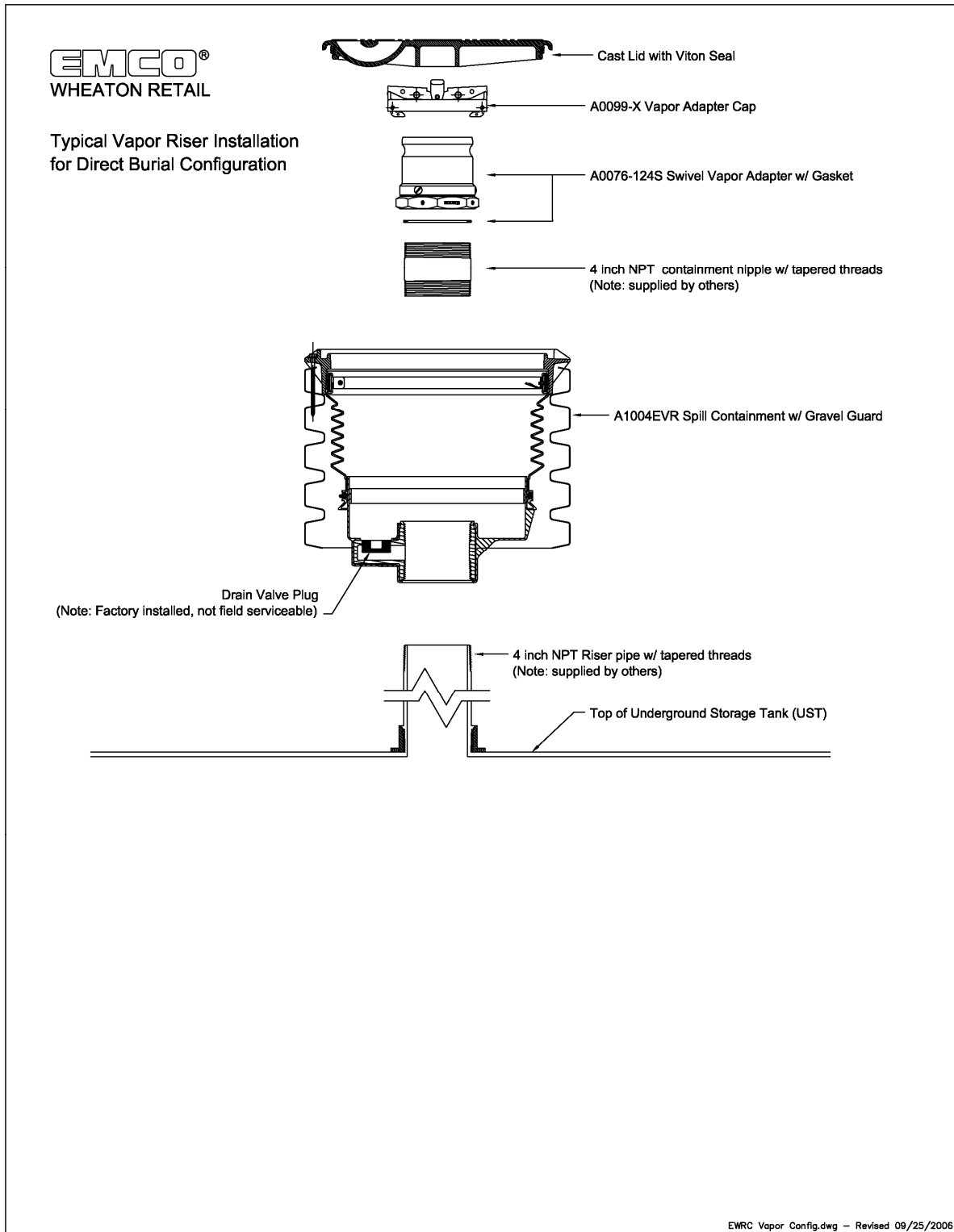


Figure A-5

**Typical Automatic Tank Gauge Probe Riser Installation
Of the EMCO Wheaton Retail System**

EMCO®
WHEATON RETAIL

Typical Automatic Tank Gauge (ATG)
Probe Riser Installation

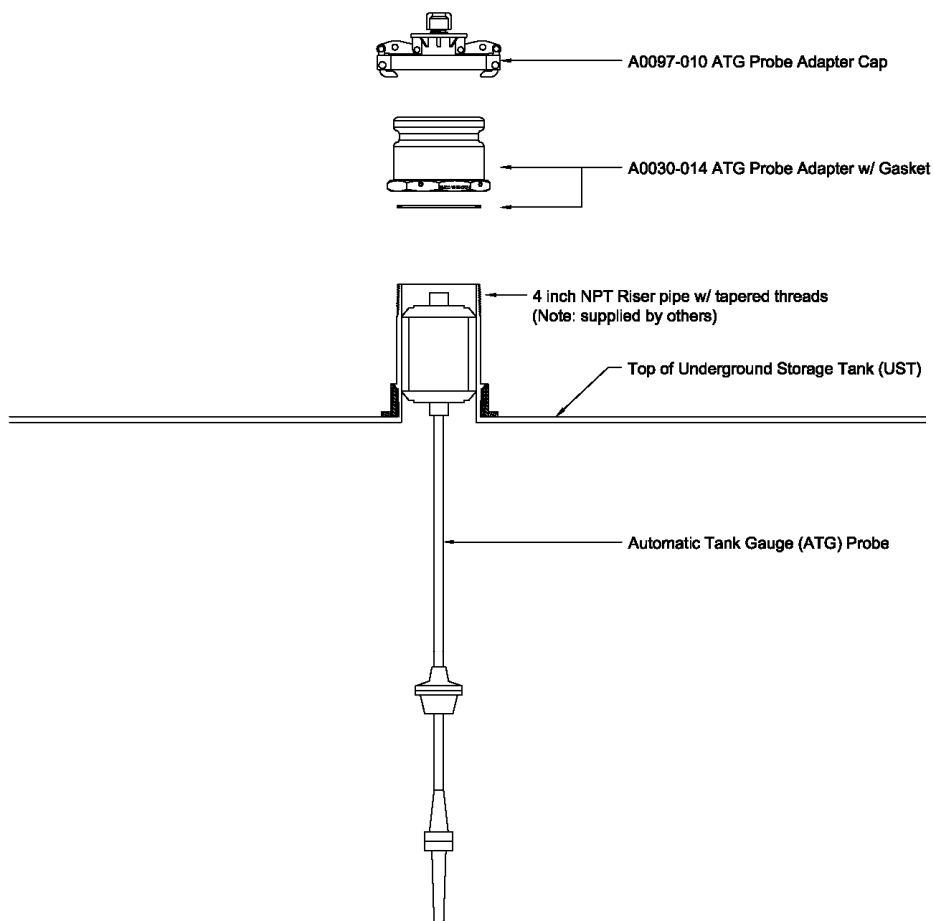
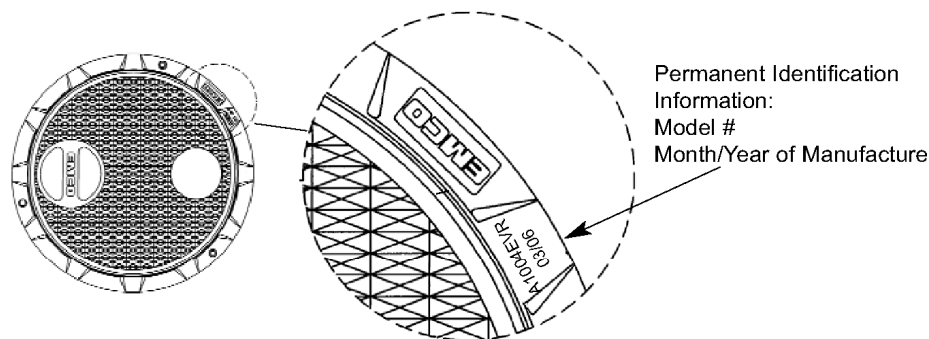


Figure B-1

Installation Instructions for Multi-port Containment Assembly

EMCO®
WHEATON RETAIL

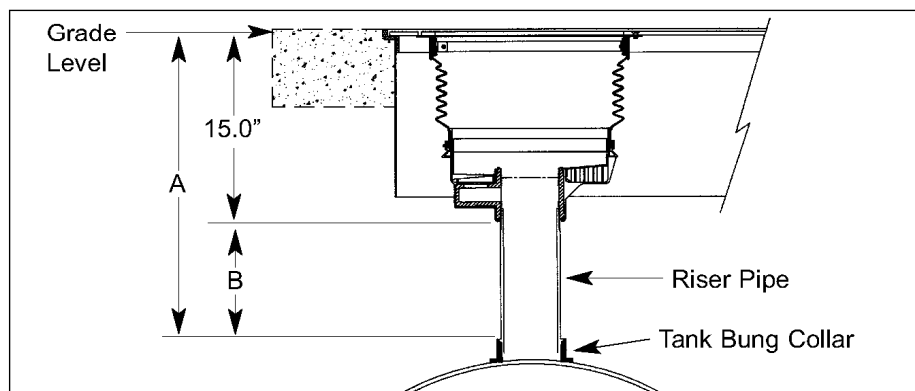
A1004EVR
SPILL CONTAINMENT
MULTI-PORT APPLICATION



INSTALLATION INSTRUCTIONS

The A1004EVR Spill Containment will accommodate movement during installation. Three spacer bars (p/n 567550) are located around the interior of the A1004EVR Spill Containment bucket to stabilize the unit during installation. These spacer bars are factory installed and must be removed after the concrete has set and/ or the installation has been completed.

Sizing the Riser Pipe



1. Find measurement A, the distance between grade level to the top of the tank bung collar.
2. The A1004EVR Spill Containment height is 15.0 inches when the spacer bars are mounted in place. Find measurement B, by subtracting the A1004EVR Spill Containment height from measurement A plus 2.0 inches.

Example: Measurement B equals Measurement A minus 15.0 inches plus 2.0 inches.

3. After properly sizing the 4-inch diameter riser pipe, cut threads to either NPT or BSP standards. Use a non-hardening, gasoline resistant pipe thread seal compound, and fasten the 4-inch diameter riser pipe to the tank bung collar.

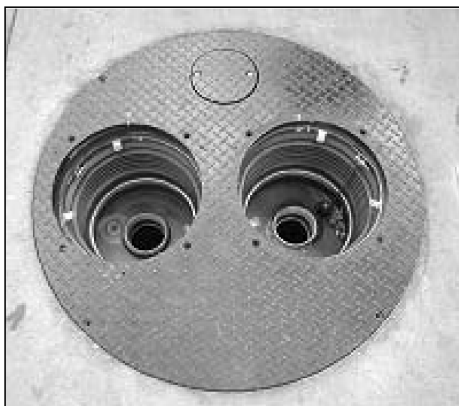
IMPORTANT: Do not use hacksaw to cut riser pipe.

Figure B-1 (continued)

Installation Example

1. The tank burial is 36 inches from grade level to the top of the tank bung collar. Measurement A equals 36 inches.
2. The A1004EVR Spill Containment height is 15.0 inches. Subtract this amount from measurement A, 36 inches, plus 2 inches.
3. The 4-inch diameter riser pipe length is measurement B, 23.0 inches.

Spill Containment To Riser Pipe



1. Before installing the A1004EVR Spill Containment, the top edge of the riser pipe must be filed flat and square, with threads free of all debris to insure a proper sealing surface between the riser pipe and base of the A1004EVR Spill Containment.
2. Apply a non-hardening, gasoline resistant pipe thread seal compound to the threads of the riser pipe. Manually tighten the A1004EVR Spill Containment onto the riser pipe to

avoid cross threading. Using the Emco Wheaton Retail p/n 494241 Spill Containment Wrench, torque the A1004EVR Spill Containment between 100 ft-lbs. and 150 ft-lbs.

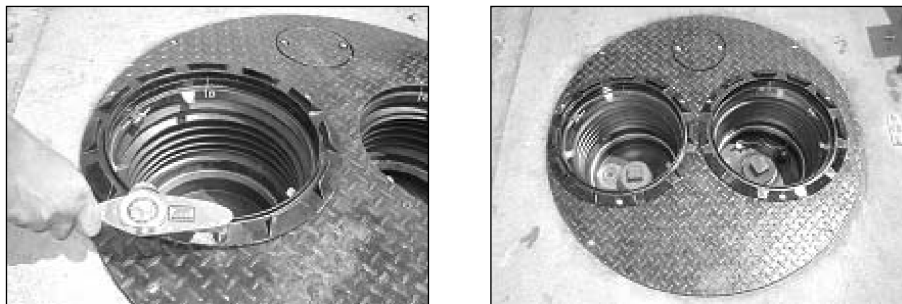


3. Fasten the manhole lid to the manhole rim. Manually install the factory supplied 5/16 hex bolts to avoid cross threading and torque between 9 ft-lbs. and 11 ft-lbs.



4. Fasten the A1004EVR Spill Containment buckets (fill and vapor) to the bottom of the manhole lid. Manually install the factory supplied 5/16 Allen hex bolts to avoid cross threading and torque between 9 ft-lbs. and 11 ft-lbs.

Figure B-1 (continued)



5. Fasten the A1004EVR Spill Containment rings (fill and vapor) to the top of the manhole lid. Manually install the factory supplied 5/16 hex bolts to avoid cross threading and torque between 9 ft-lbs. and 11 ft-lbs.

**Spill Containment with Overfill Prevention Valve,
Riser Seal, Swivel Fill Adapter and Fill Adapter Cap**

1. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Overfill Prevention Valve, please refer to the A1100EVR installation instructions.
2. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Riser Seal, please refer to the 494096 installation instructions.
3. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Swivel Fill Adapter, please refer to the A0030-124S installation instructions.
4. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Fill Adapter Cap, please refer to the A0097-005 installation instructions.

Spill Containment with Swivel Vapor Adapter and Vapor Adapter Cap

1. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Swivel Vapor Adapter, please refer to the A0076-124S installation instructions.
2. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Vapor Adapter Cap, please refer to the A0099-002, -003 installation instructions.

Backfill and Finish

1. Complete back filling around the A1004EVR Spill Containment manhole to the depth required for a concrete pad.
2. Concrete must completely fill around the A1004EVR Spill Containment manhole rim and skirting to insure proper anchoring.
3. Carefully remove the three spacer bars from the inside of the A1004EVR Spill Containment.
4. Clean and remove all debris from the inside of the A1004EVR Spill Containment bucket, drain valve and filter assembly.
5. Paint the A1004EVR Spill Containment rim and lid to the desired fuel grade color code.

Figure B-1 (continued)

PREVENTIVE MAINTENANCE

1. Quarterly verify that the inside of the A1004EVR Spill Containment bucket is free of all dirt, gravel, debris, etc. Should cleaning be required, wipe the inside wall and bottom of the A1004EVR Spill Containment bucket using soapy water and a disposable towel.
2. After each delivery, the station operator must remove any standing gasoline from the inside of the A1004EVR Spill Containment. If gasoline does not drain, refer to the #494118 drain valve preventive maintenance instructions.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. TP-201.1D - Complies with the allowable maximum leakrate of 0.17 CFH @ 2.00 inches of water.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

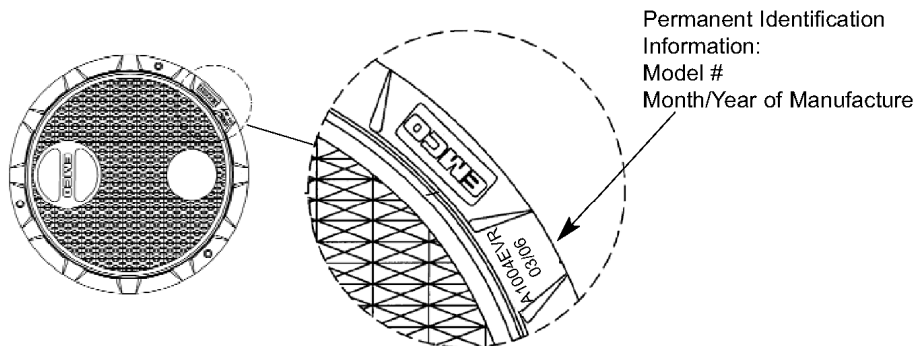
p/n 569263
06/06, Rev. D

Figure B-2

Installation Instructions for Direct Burial Containment Assembly

EMCO®
WHEATON RETAIL

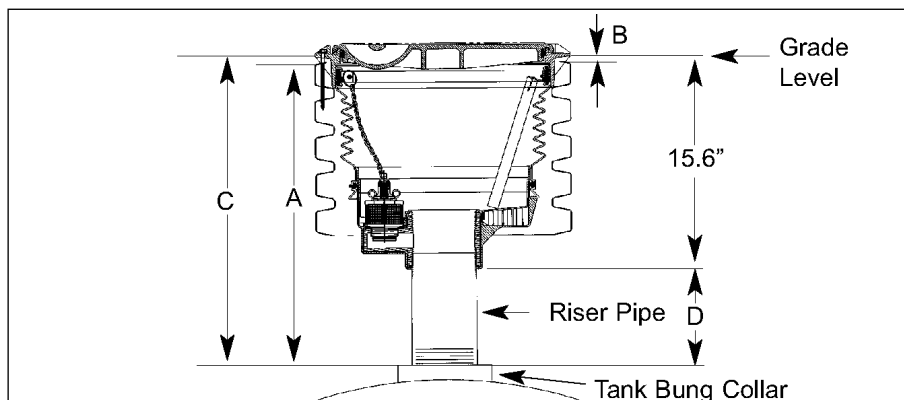
A1004EVR
SPILL CONTAINMENT
DIRECT BURIAL APPLICATION



INSTALLATION INSTRUCTIONS

The A1004EVR Spill Containment will accommodate movement during installation. Three spacer bars (p/n 567550) are located around the interior of the A1004EVR Spill Containment bucket to stabilize the unit during installation. These spacer bars are factory installed and must be removed after the concrete has set and/ or the installation has been completed.

Sizing the Riser Pipe



1. Find measurement A, the distance between grade level to the top of the tank bung collar.
2. Find measurement C by adding measurement A to measurement B, the crown height.

Example: Measurement C equals Measurement A, plus Measurement B, the crown height.

IMPORTANT: Crown height must be a minimum of 1 inch for proper water run-off.

Figure B-2 (continued)

3. The A1004EVR Spill Containment height is 15.6 inches when the spacer bars are mounted in place. Find measurement D, by subtracting the A1004EVR Spill Containment height from measurement C plus 2.0 inches.

Example: Measurement D equals Measurement C, minus 15.6 inches plus 2.0 inches.

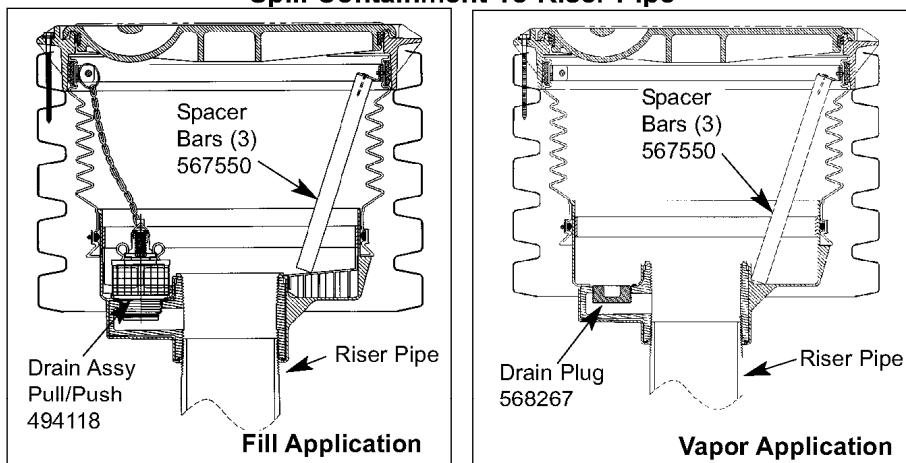
4. After properly sizing the 4-inch diameter riser pipe, cut threads to either NPT or BSP standards. Use a non-hardening, gasoline resistant pipe thread seal compound fasten the 4-inch diameter riser pipe to the tank bung collar.

IMPORTANT: Do not use hacksaw to cut riser pipe.

Installation Example

1. The tank burial is 36 inches from grade level to the top of the tank bung collar. Measurement A equals 36 inches.
2. The site installation requires a 1-inch crown height for proper water run-off. Measurement B is 1 inch. Add measurement A, 36 inches, to measurement B, 1 inch, equals measurement C, 37 inches.
3. The A1004EVR Spill Containment height is 15.6 inches. Subtract this amount from measurement C, 37 inches, plus 2 inches.
4. The 4-inch diameter riser pipe length is measurement D, 23.4 inches.

Spill Containment To Riser Pipe



1. Before installing the A1004EVR Spill Containment, the top edge of the riser pipe must be filed flat and square, with threads free of all debris to insure a proper sealing surface between the riser pipe and base of the 1004EVR Spill Containment.
2. Apply a non-hardening, gasoline resistant pipe thread seal compound to the threads of the riser pipe. Manually tighten the A1004EVR Spill Containment onto the riser pipe to avoid cross threading. Using the Emco Wheaton Retail p/n 494241 Spill Containment Wrench, torque the A1004EVR Spill Containment between 100 ft-lbs. and 150 ft-lbs.

Figure B-2 (continued)

Spill Containment with Overfill Prevention Valve, Riser Seal, Swivel Fill Adapter and Fill Adapter Cap

1. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Overfill Prevention Valve, please refer to the A1100EVR installation instructions.
2. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Riser Seal, please refer to the 494096 installation instructions.
3. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Swivel Fill Adapter, please refer to the A0030-124S installation instructions.
4. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Fill Adapter Cap, please refer to the A0097-005 installation instructions.

Spill Containment with Swivel Vapor Adapter and Vapor Adapter Cap

1. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Swivel Vapor Adapter, please refer to the A0076-124S installation instructions.
2. When installing the A1004EVR Spill Containment with an Emco Wheaton Retail Vapor Adapter Cap, please refer to the A0099-002, -003 installation instructions.

Backfill and Finish

1. Complete back filling over tank and around the A1004EVR Spill Containment to the depth required for a concrete pad.
2. Concrete must completely fill around and under the A1004EVR Spill Containment rim to insure proper anchoring.
3. Before the concrete has set, carefully remove the excess concrete from the inside of the A1004EVR Spill Containment bucket, rim and water run-off channels.

IMPORTANT: Crown height must be a minimum of 1 inch for proper water run-off.

4. Once the concrete has set, carefully remove the three spacer bars from the inside of the A1004EVR Spill Containment.
5. Clean and remove all debris from the inside of the A1004EVR Spill Containment bucket, drain valve and filter assembly.
6. Paint the A1004EVR Spill Containment rim and lid to the desired fuel grade color code.

Figure B-2 (continued)

PREVENTIVE MAINTENANCE

1. Quarterly verify that the inside of the A1004EVR Spill Containment bucket is free of all dirt, gravel, debris, etc. Should cleaning be required, wipe the inside wall and bottom of the A1004EVR Spill Containment bucket using soapy water and a disposable towel.
2. After each delivery, the station operator must remove any standing gasoline from the inside of the A1004EVR Spill Containment. If gasoline does not drain, refer to the #494118 drain valve preventive maintenance instructions.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. TP-201.1D - Complies with the allowable maximum leakrate of 0.17 CFH @ 2.00 inches of water.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty. The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation. Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation. **EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 569262
06/06, Rev. D

Figure C-1

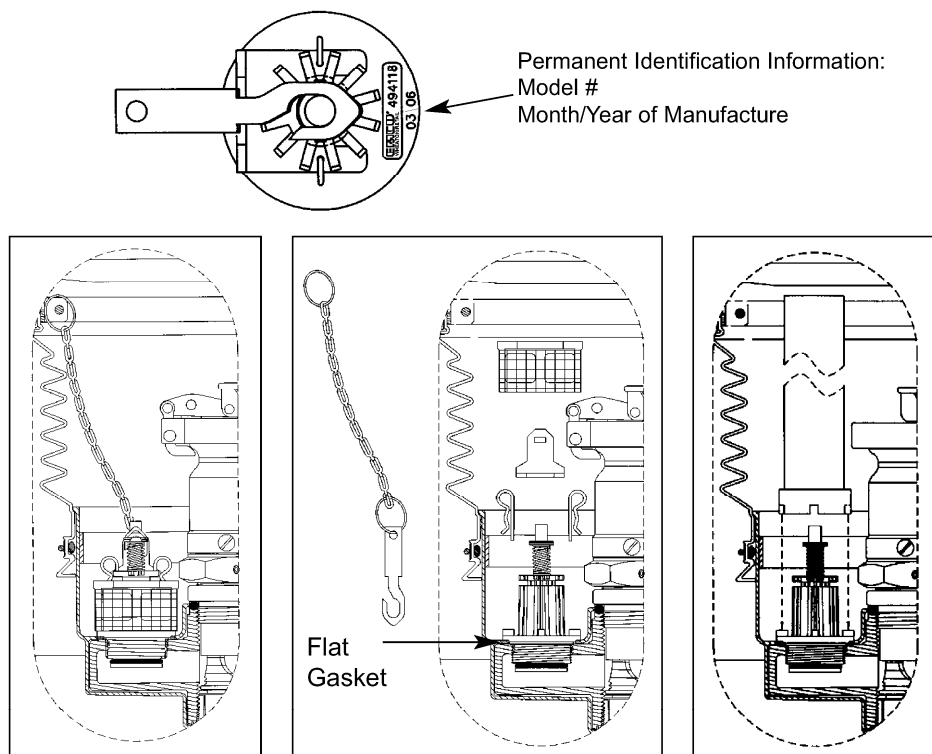
Installation Instructions for Drain Valve

EMCO®
WHEATON RETAIL

494118
Drain Valve Kit A1004EVR

Replaces drain valves used on A1004EVR Spill Containment

INSTALLATION INSTRUCTIONS



1. Begin by removing the lid from the A1004EVR Spill Containment. Using a pair of needle nose pliers, remove both cotter pins and disassemble the linkage from the top of the drain valve assembly.
2. Carefully remove the filter from the top of the drain valve assembly. Using the Emco Wheaton Retail p/n 493820 Drain Wrench, remove the drain valve assembly from the bottom of the A1004EVR Spill Containment.
3. Before installing the new drain valve assembly into the A1004EVR Spill Containment, clean and remove all dirt, gravel, debris, etc. from the bottom. Verify that the flat gasket is installed and properly secured.
4. Manually tighten the new drain valve assembly to avoid cross threading. Using the Emco Wheaton Retail p/n 493820 Drain Wrench, torque between 13 ft-lbs and 15 ft-lbs.
IMPORTANT: Do not use pipe thread sealant compound when installing the drain valve assembly.
5. Carefully re-install the filter assembly along with the linkage and both cotter pins. Verify that the drain valve opens and closes when pulling up on the chain.

Figure C-1 (continued)

PREVENTIVE MAINTENANCE

1. Quarterly test the operation of the drain valve assembly by pulling up on the chain located inside the A1004EVR Spill Containment bucket.
2. If gasoline does not drain when actuating the drain valve assembly perform steps (a) through (d) below.
 - a) Remove the filter from the drain valve. Using a pair of needle nose pliers, remove both cotter pins and disassemble the linkage from the top of the drain valve. Soak the filter in soapy water and use high pressure air to clean and remove all debris, replace the filter p/n 569131 only if the screen is damaged.
 - b) Using the Emco Wheaton Retail p/n 493820 Drain Wrench unscrew the drain valve and remove from the bottom of the A1004EVR Spill Containment bucket. Soak the drain valve in soapy water and use high pressure air to clean and remove all debris, replace the flat gasket p/n 567108 before re-installing.
 - c) To re-install the drain valve assembly, refer to installation instructions steps 3 through 5. Verify leak tightness integrity of the drain valve assembly by performing ARB test procedure TP-201.1D.
 - d) If the drain valve assembly fails to pass ARB test procedure TP-201.1D, replace with new and refer to installation instructions steps 1 through 5.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. TP-201.1D - Complies with the maximum leakrate of 0.17 CFH @ 2.00 inches of water.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty. The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation. Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation. **EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893 • 252-243-0150
252-243-4759 (fax) • 619-421-1743 (Technical Services, California)

p/n 568395
06/06, Rev. G

Figure D-1

Installation Instructions for Overfill Prevention Device

EMCO®
WHEATON RETAIL

A1100EVR GUARDIAN OVERFILL PREVENTION VALVE WITH THREADED BOTTOM

Permanent Identification Information:
Model #
Month/Year of Manufacture



INSTALLATION INSTRUCTIONS

Caution

1. If the underground storage tank is equipped with a ball float vent valve, make sure it does not extend below the positive shut-off point of the A1100EVR Overfill Prevention Valve. If so, the ball float valve must be removed to allow proper operation of the A1100EVR Overfill Prevention Valve.
2. Never disconnect the drop elbow from the fill adapter when the A1100EVR Overfill Prevention Valve has reached the positive shut-off point of 95% total capacity. Note the tank truck hose is still full and must not be disconnected until enough fuel has been evacuated from the underground storage tank. This will allow the tank truck hose to drain, and be safe to disconnect from the fill adapter. Premature disconnection will result in a hazardous spill and/or a potential for personal injury and property damage.
3. Do not use electrical devices near gasoline vapors, as it could result in fire or explosion.

Warning

1. The A1100EVR Overfill Prevention Valve can only be installed after the spill containment has been installed.
2. Do not use a power saw, piping or tubing cutter as this may result in damage to the top drop tube, voiding warranty.
3. Once the A1100EVR Overfill Prevention Valve is completely assembled, **the Seal-All Sealant must cure for a minimum of 24 hours before installing into the underground storage tank.**
4. Only use non-hardening gasoline resistant pipe thread seal compound.

Tools Required

13/64" Drill Bit	Hacksaw (fine tooth)	Pipe Sealant
Pop Rivet Gun	Hand File (fine)	150-Grit Size Emery Cloth
Power Drill	Marker	De-burring Tool w/ #10 Blade
Tape Measure	Hammer	Fabric Strap Wrench (2)
Emco Drill Fixture, p/n 566675		

Packing List

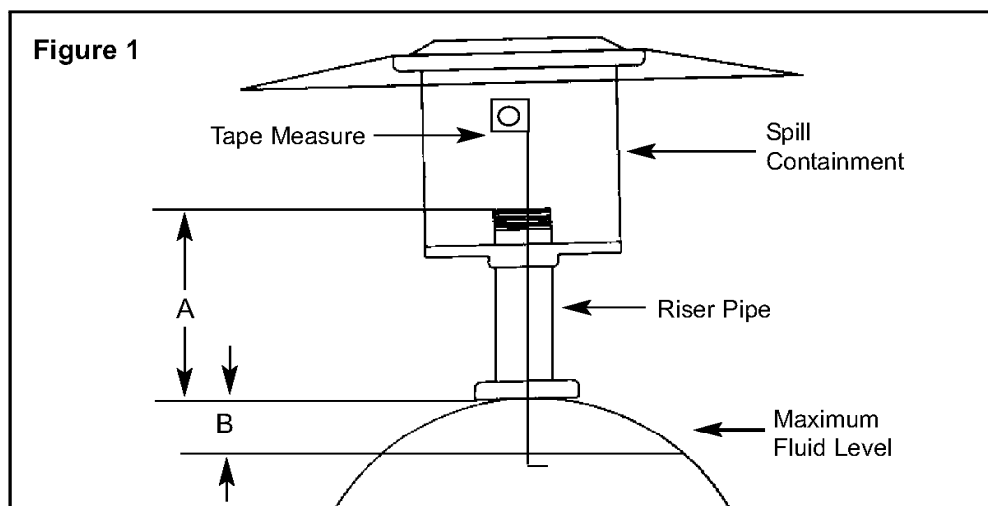
- | | |
|---|-----------------------------------|
| (1) O-ring #561683 | (4) Pop Rivets #564412 |
| (1) Hose Clamp #564421 | (1) Counter Sink Indenter #564416 |
| (1) Warning Plate #564420 | (1) Seal-All Sealant #566726 |
| (1) Collar #566679 with O-ring #480049 | |
| (1) Bottom Aluminum Tube Assembly w/Bushing #568189 Attached | |
| (1) A1100EVR Overfill Prevention Valve w/Top Tube & Screw Base Attached | |

Figure D-1 (continued)

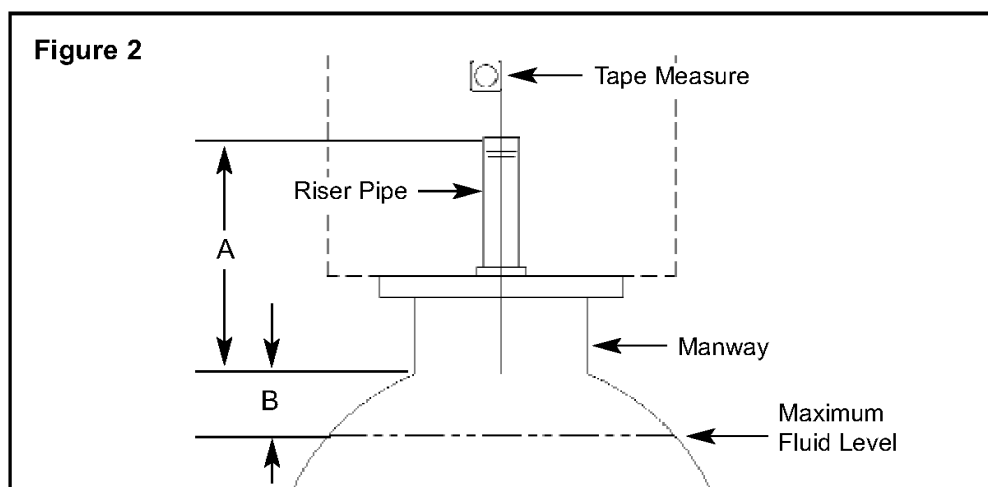
Top Tube Installation Procedure

1. Find measurement A, the distance from the inside top of the tank to the top edge of the riser pipe as shown in Figure 1. If the tank is equipped with a manway, be sure to include the extra height as shown in Figure 2.

When installing the A1100EVR Overfill Prevention Valve below the spill containment drain valve, measurement A is the distance between the inside top of the tank to the top edge of the riser pipe as shown in Figure 3.

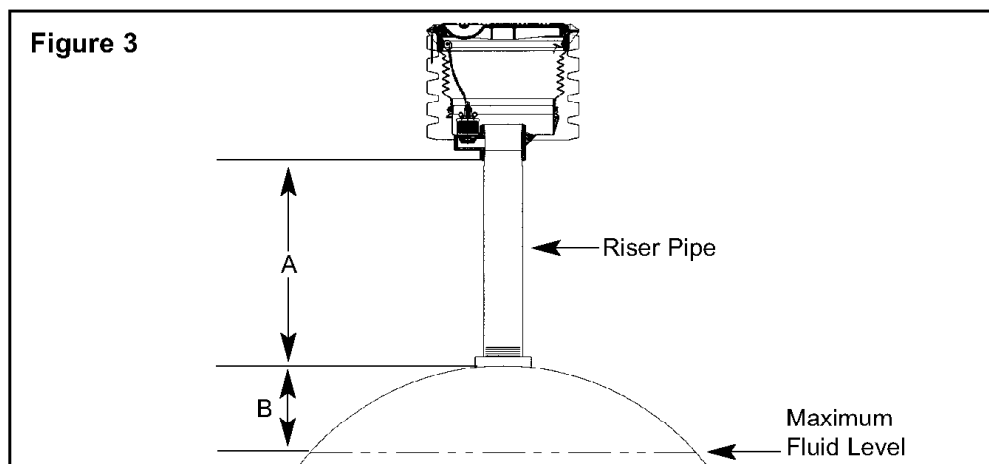


Riser Pipe With Spill Containment



Riser Pipe Installed On Manway

Figure D-1 (continued)



A1100EVR Overfill Prevention Valve Installed Below Drain Valve

- Find measurement B from the chart below, the distance from the maximum fluid level allowed to the inside top of the tank. The calculations are based on cylindrical tanks with flat ends. For exact dimensions, consult the manufacturer's tank charts. Local requirements may limit fill capacity to 95%.

Tank Diameter		95% Shut-off B Dimension	
Feet	Meters	Inches	mm
4.0'	1.22	5.0"	127
6.0'	1.83	7.0"	178
6.5'	1.98	7.5"	190
7.0'	2.13	8.0"	203
7.6'	2.29	9.0"	229
8.0'	2.44	9.5"	241
8.2'	2.50	9.5"	241
8.5'	2.59	10.0"	254
9.0'	2.74	10.5"	267
9.5'	2.90	11.0"	279
10.0'	3.05	11.5"	292
12.0'	3.66	14.0"	336

- Find measurement C, add measurements A and B minus 3 inches. Measure and cut the top drop tube to the required length.

Example: Top drop tube cut length, $C = A + B - 3"$

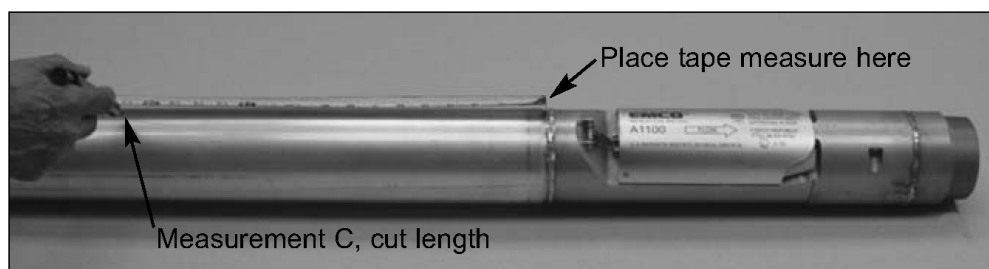
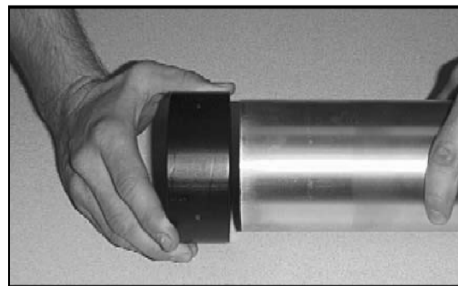


Figure D-1 (continued)



4. Carefully cut the top drop tube using a hacksaw equipped with a fine tooth blade to ensure a straight 90-degree cut.

Caution: Do not use a power saw, pipe or tubing cutter as this may result in damage to the top drop tube, voiding warranty.



5. Slide the Emco Wheaton Retail Drill Fixture p/n 566675 over the top drop tube until the edge bottoms out against the inside ridge.



6. Drill four 13/64 diameter holes through the top drop tube. Remove the drill fixture from the top drop tube. Using a de-burring tool equipped with a #10 blade, carefully remove any sharp burrs around the inside area of the mounting holes.



7. Using a fine blade hand file, carefully remove all burrs from the inside and outside edge of the top drop tube. File the edge of the top drop tube square and remove all rough edges.

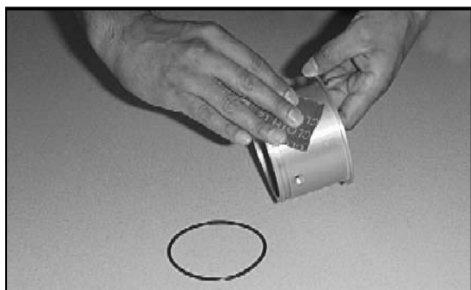


8. Using a de-burring tool equipped with a #10 blade, carefully remove the sharp cutting ring from the inside edge of the top drop tube. Lightly sand the inside area of the top drop tube and mounting holes using 150-grit size emery cloth. Clean and remove any sanding debris.

Caution: Failure to perform this procedure will damage the O-ring seal during the installation of the A1100EVR riser collar, voiding warranty.

Figure D-1 (continued)

A1100EVR Riser Collar to Top Drop Tube Installation Procedure



9. Carefully remove the O-ring seal from the A1100EVR riser collar. Lightly sand the outside area using 150-grit size emery cloth. Clean and remove any sanding debris and re-install O-ring.



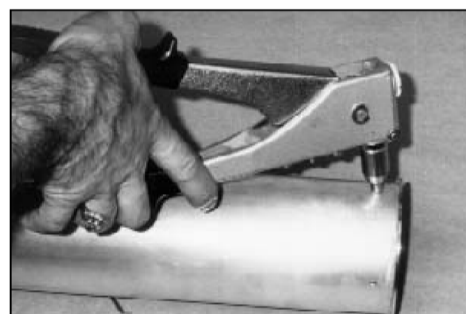
10. Apply a 1/2 inch bead of Seal-All sealant completely around the O-ring seal and outside area of the A1100EVR riser collar. Verify the O-ring seal is properly secured inside the machined groove.



11. Slide the A1100EVR riser collar inside the top drop tube and align the four holes.



12. Using the indenter tool and a hammer, apply a sharp blow to counter sink each individual hole before attempting to install the mounting rivets.



13. Using factory supplied rivets, permanently fasten the A1100EVR riser collar to the top drop tube. Apply a small amount of Seal-All sealant around the base of each rivet before installing.

14. Once finished with steps 11 through 13, clean and remove all excess sealant around the top of the A1100EVR riser collar and rivets.

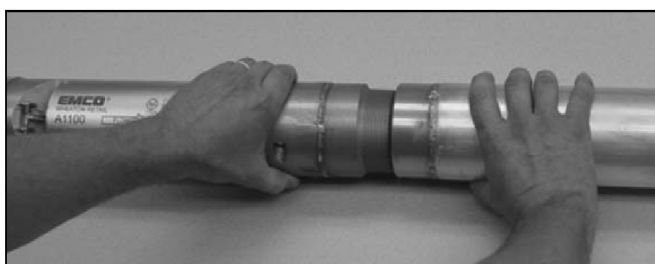
IMPORTANT: The Seal-All sealant must cure for a minimum of 24 hours before installing into the underground storage tank.

Figure D-1 (continued)

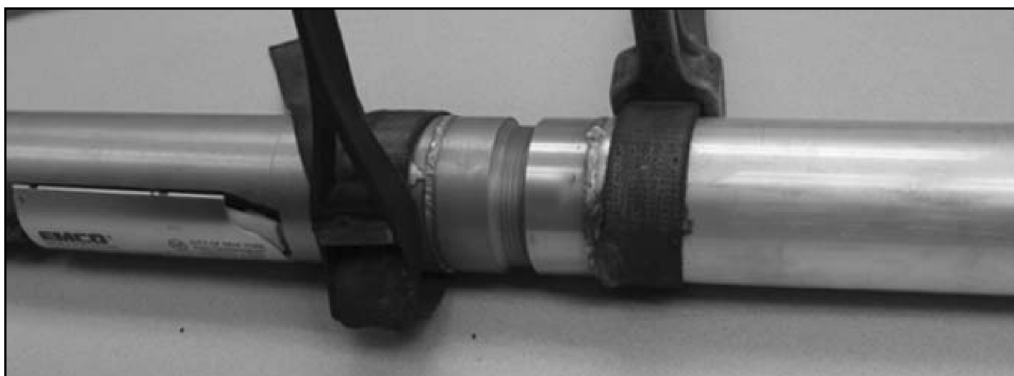
A1100EVR Overfill Prevention Valve to Lower Drop Tube Installation Procedure



15. Apply pipe thread seal compound to the male threads of the A1100EVR base.



16. Manually tighten the male threaded end of the A1100EVR base to the female threaded end of the lower drop tube to avoid cross threading.



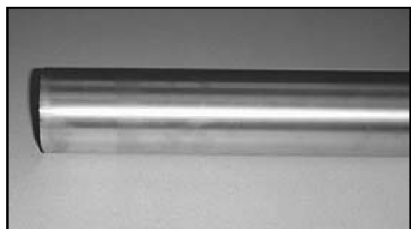
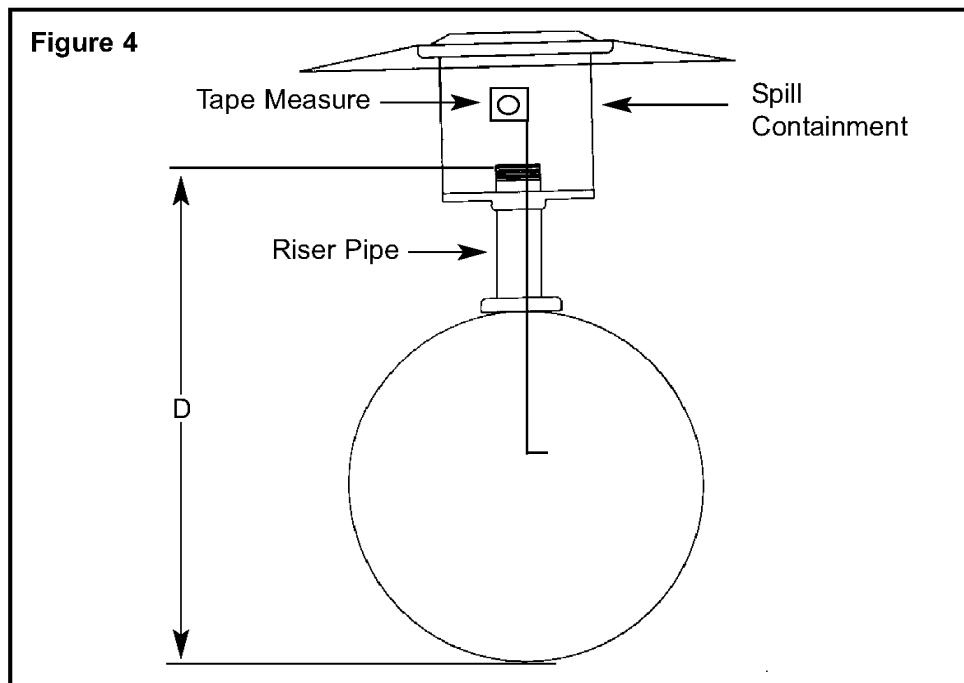
17. Using two fabric strap wrenches, tighten and secure the A1100EVR base to the lower drop tube.

IMPORTANT: Once the Seal-All sealant has cured for a minimum of 24 hours and before installing the A1100EVR Overfill Prevention Valve into the underground storage tank, a leak tightness integrity test must be performed.

Begin by sealing both ends of the A1100EVR Overfill Prevention Valve with inflatable plumber's plugs. Apply a maximum pressure of 2 inches of water column. Should the leak rate exceed the allowable limit of 0.17 CFH, locate the leak point by spraying soap solution along the outside of the A1100EVR Overfill Prevention Valve.

CAUTION: Do not exceed the maximum pressure of 2 inches of water column. This will damage the A1100 Overfill Prevention Valve and result in voiding the warranty.

Figure D-1 (continued)



18. Find measurement D, the distance between the top of the riser pipe and the bottom of the tank minus 6 inches as shown in Figure 4. Measure and cut square.

IMPORTANT: Do not apply a 45 degree miter cut to the very bottom of the lower drop tube.

A1100EVR Overfill Prevention Valve to Tank Riser Pipe Installation Procedure

19. Once completely assembled, turn the A1100EVR Overfill Prevention Valve upside down and shake vertically to remove any metal chips or debris left from the cutting, drilling and sanding process. Locate the A1100EVR Overfill Prevention Valve over the riser pipe with the A1100 riser collar pointing upward. Carefully lower the A1100EVR Overfill Prevention Valve into the tank until the A1100EVR riser collar rests on the edge of the riser pipe. Verify that the A1100EVR riser collar O-ring is installed and properly secured.

When installing the A1100EVR Overfill Prevention Valve below the spill containment drain valve, please refer to the Emco Wheaton p/n 494096 Riser Seal Installation Instructions.

Fill Adapter to Riser Pipe Installation Procedure

20. Before re-installing the fill adapter, verify that the flat gasket is installed and properly secured. When installing an Emco Wheaton Swivel Fill Adapter, please refer to the A0030-124S Installation Instructions.

Figure D-1 (continued)

PREVENTIVE MAINTENANCE

1. Annually, conduct a visual inspection of the flapper valve assembly located inside the A1100EVR Overfill Prevention Valve. Begin by removing the spill containment lid and fill adapter cap, looking down over the fill opening, verify that the flapper valve assembly is open and free of any foreign objects that can block or restrict the flow of gasoline into the underground storage tank during a fuel delivery.
2. Annually, verify leak tightness integrity of the A1100EVR Overfill Prevention Valve by performing ARB test procedure TP-201.1D.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. TP-201.1D - Meets or exceeds the allowable maximum leakrate of 0.17 CFH @ 2.00 inches of water.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568415
Rev. G, 10/06

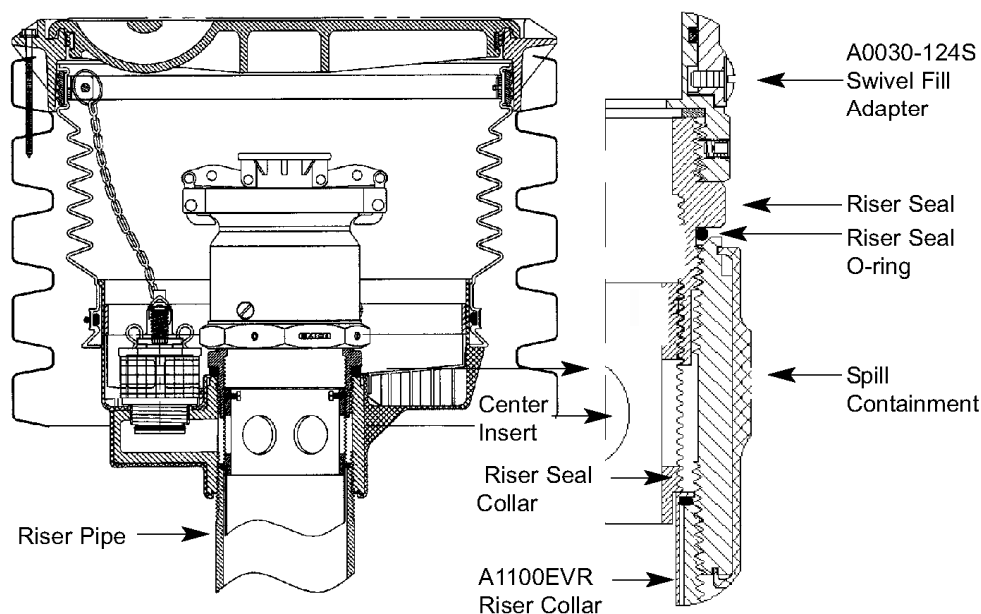
Figure E-1

Installation Instructions for Riser Seal

EMCO®
WHEATON RETAIL

494096
Riser Seal

INSTALLATION INSTRUCTIONS



The p/n 494096 Riser Seal is used when installing the Emco Wheaton Retail A1100EVR Overfill Prevention Valve below the spill containment drain valve. This allows the standing gasoline or water inside the spill containment bucket to drain directly into the fill riser drop tube.

1. Before installing the A1100EVR Overfill Prevention Valve into the tank fill riser, verify that the A1100EVR riser collar o-ring is installed and properly secured.
2. Locate the A1100EVR Overfill Prevention Valve over the opening of the spill containment with the A1100EVR riser collar pointing upward. Carefully lower the A1100EVR Overfill Prevention Valve into the tank below the spill containment drain valve until the A1100EVR riser collar rests on the top edge of the riser pipe.
3. Before installing the Riser Seal into the spill containment, verify that the sealing o-ring is installed and properly secured. Manually tighten the Riser Seal on to the top threads of the spill containment to avoid cross threading. Using the Emco Wheaton Retail p/n A0081-001C Adapter Wrench, torque the Riser Seal to 80 ft-lbs.

IMPORTANT: Do not use pipe thread sealant compound when installing the Riser Seal.

Figure E-1 (continued)

4. Using the Emco Wheaton Retail p/n 494120 Riser Seal Wrench, torque the center insert located inside the Riser Seal between 35 ft-lbs to 45 ft-lbs. Manually remove both 1/4-20 bolts.
5. Before installing the Emco Wheaton Retail Swivel Fill Adapter, please refer to the A0030-124S installation instructions.

PREVENTIVE MAINTENANCE

1. Annually verify leak tightness integrity of the Riser Seal by performing ARB test procedure TP-201.1D.
2. If the Riser Seal fails to meet the leak tightness integrity test requirements, replace the bottom o-ring with the Emco Wheaton o-ring kit p/n 494242.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. CP-201 - Complies with the allowable maximum performance standards and all applicable ARB test procedures.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty. The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation. Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568398
Rev. D, 06/06

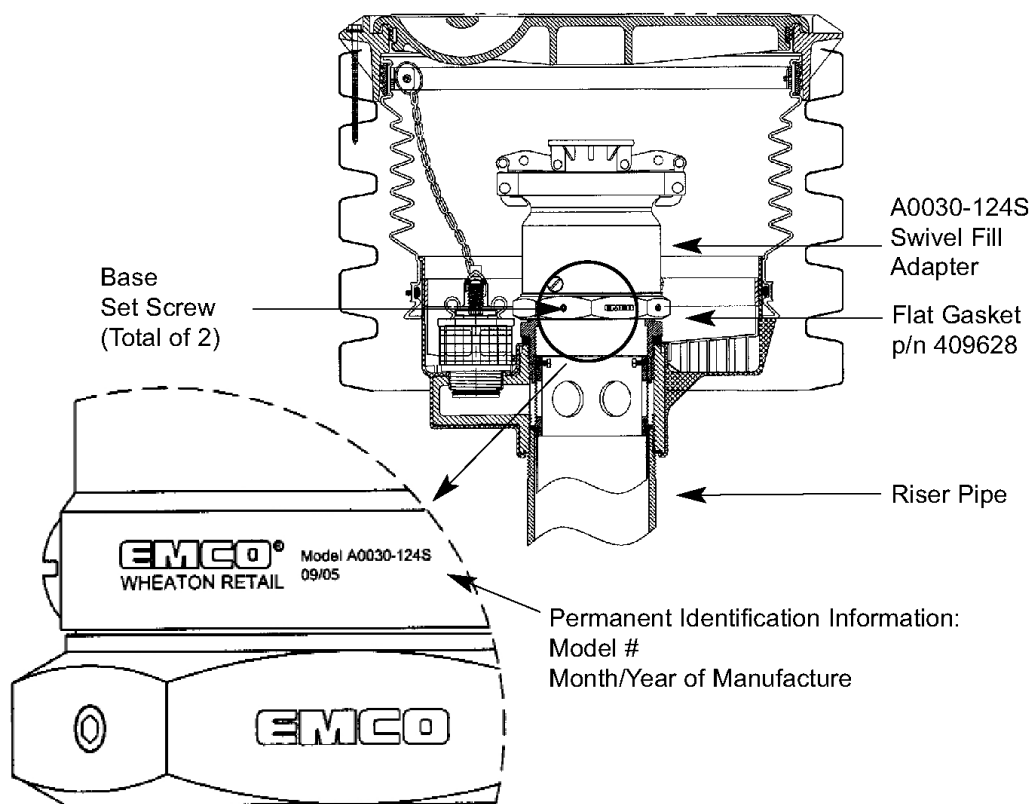
Figure F-1

Installation Instructions for Product Adaptor

EMCO®
WHEATON RETAIL

A0030-124S
Swivel Fill Adapter

INSTALLATION INSTRUCTIONS



1. Using a 5/32" Allen wrench, remove both set screws from the base of the swivel adapter.
2. Before installing the swivel adapter on to the Riser Seal, verify that the flat gasket is properly in place. Manually tighten the swivel adapter on to the top of the riser seal to avoid cross threading. Using the Emco Wheaton Retail A0081-001C Adapter Wrench, torque the swivel adapter between 60 ft-lbs. and 75 ft-lbs.

IMPORTANT: Do not use pipe thread sealant compound when installing the swivel adapter on to the Riser Seal.

3. Apply lock-tite model #222MS on both set screws. Re-install and torque to 20 in-lbs.

Figure F-1 (continued)

PREVENTIVE MAINTENANCE

Static Torque Test

1. Using the Emco Wheaton Retail p/n 494240 Swivel Adapter Torque Wrench, annually verify the static torque of the swivel adapter by performing ARB test procedure TP-201.1B.
2. If the swivel adapter fails to meet the static torque test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301.

Leak Tightness Integrity Test

1. Annually verify leak tightness integrity of the swivel adapter by performing ARB test procedure TP-201.1D.
2. If the swivel adapter fails to meet the leak tightness integrity test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301 or flat gasket p/n 409628.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. TP-201.1B - Complies with the allowable maximum: 108 in-lbs. average static torque and 360 degrees rotation.
2. Meets ARB Cam and Groove Specifications.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568396
Rev. G, 06/06

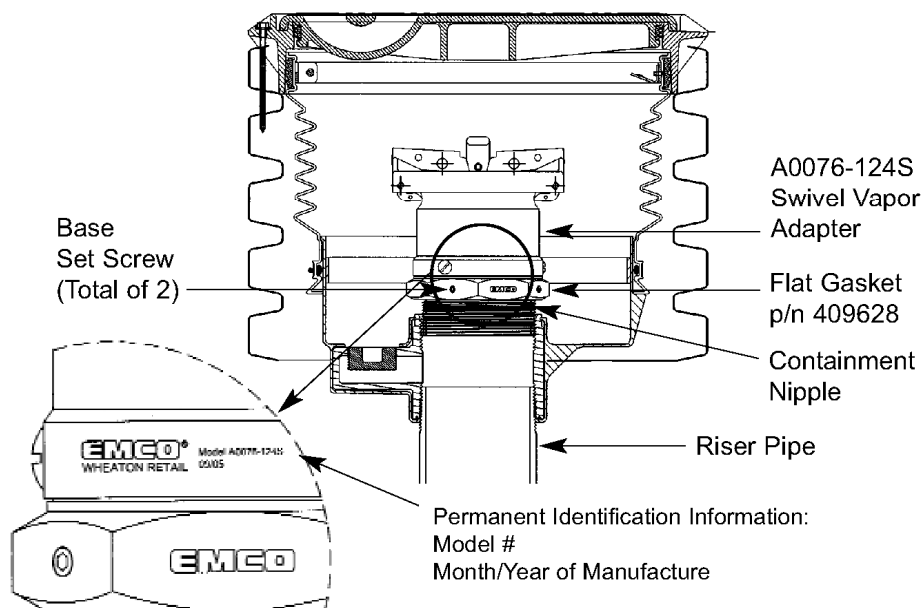
Figure F-2

Installation Instructions for Vapor Adaptor

EMCO®
WHEATON RETAIL

A0076-124S
Swivel Vapor Adapter

INSTALLATION INSTRUCTIONS



Containment Nipple Pre-Installation Requirements

1. The containment nipple must be properly sized to the required height to avoid clearance limitations between the top of the vapor adapter cap and the bottom of the A1004EVR Spill Containment Lid.
2. The top edge of the containment nipple must be filed flat and square, with threads free of all debris to insure a proper sealing surface between the containment nipple and the base of the swivel adapter.
3. Apply a non-hardening gasoline resistant pipe thread seal compound to the bottom threads of the containment nipple. Manually tighten the containment nipple into the A1004EVR Spill Containment to avoid cross threading.

Swivel Adapter to Containment Nipple

1. Using a 5/32" Allen wrench, remove both set screws from the base of the swivel adapter.
2. Before installing the swivel adapter on to the containment nipple, verify that the flat gasket is properly in place. Manually tighten the swivel adapter on to the containment nipple to avoid cross threading. Using the Emco Wheaton Retail A0081-001C Adapter Wrench, torque the swivel adapter between 60 ft-lbs. and 75 ft-lbs.

IMPORTANT: Do not use pipe thread sealant compound when installing the swivel adapter on to the containment nipple.

3. Apply lock-tite model #222MS on both set screws. Re-install and torque to 20 in-lbs.

Figure F-2 (continued)

PREVENTIVE MAINTENANCE

Static Torque Test

1. Using the Emco Wheaton Retail p/n 494240 Swivel Adapter Torque Wrench, annually verify the static torque of the swivel adapter by performing ARB test procedure TP-201.1B.
2. If the swivel adapter fails to meet the static torque test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301.

Leak Tightness Integrity Test

1. Annually verify leak tightness integrity of the swivel adapter by performing ARB test procedure TP-201.3.
2. If the swivel adapter fails to meet the leak tightness integrity test requirements, replace both o-rings with the Emco Wheaton o-ring kit p/n 494301 or flat gasket p/n 409628.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. TP-201.1B - Complies with the allowable maximum: 108 in-lbs. average static torque and 360 degrees rotation.
2. Meets ARB Cam and Groove Specifications CID A-A-59326.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568397
Rev. F, 06/06

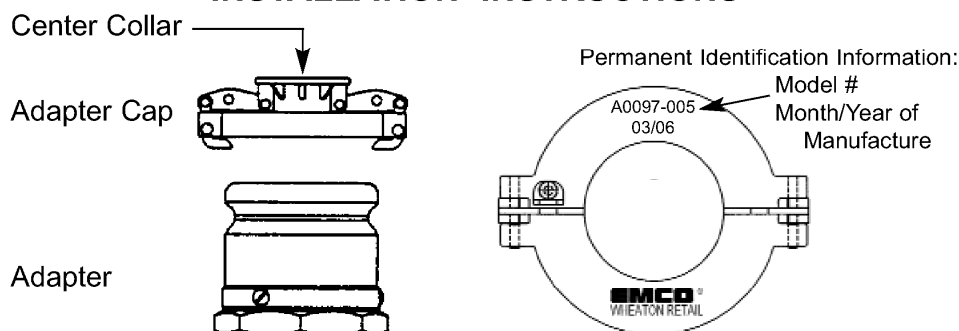
Figure G-1

Installation Instructions for Product Dust Cap

EMCO®
WHEATON RETAIL

A0097-005
Fill Adapter Cap

INSTALLATION INSTRUCTIONS



1. Carefully place fill adapter cap over swivel adapter and lock into place by pressing down on center collar.

PREVENTIVE MAINTENANCE

1. Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. Meets ARB Cam and Groove Specifications.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568391
Rev. C, 06/06

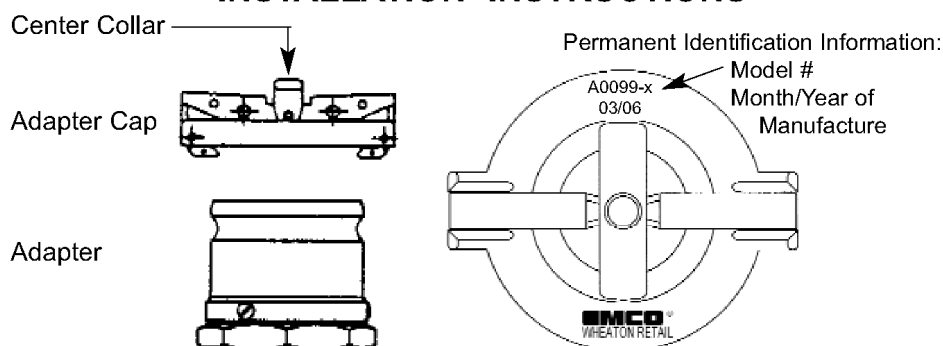
Figure G-2

Installation Instructions for Vapor Dust Cap

**EMCO®
WHEATON RETAIL**

**A0099-002, -003
Vapor Adapter Cap**

INSTALLATION INSTRUCTIONS



1. Carefully place vapor adapter cap over swivel adapter and lock into place by pressing down on center collar.

PREVENTIVE MAINTENANCE

1. Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. Meets ARB Cam and Groove Specifications CID A-A-59326.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty. The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation. Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation. **EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Emco Wheaton Retail Corp.
2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568392
Rev. C, 06/06

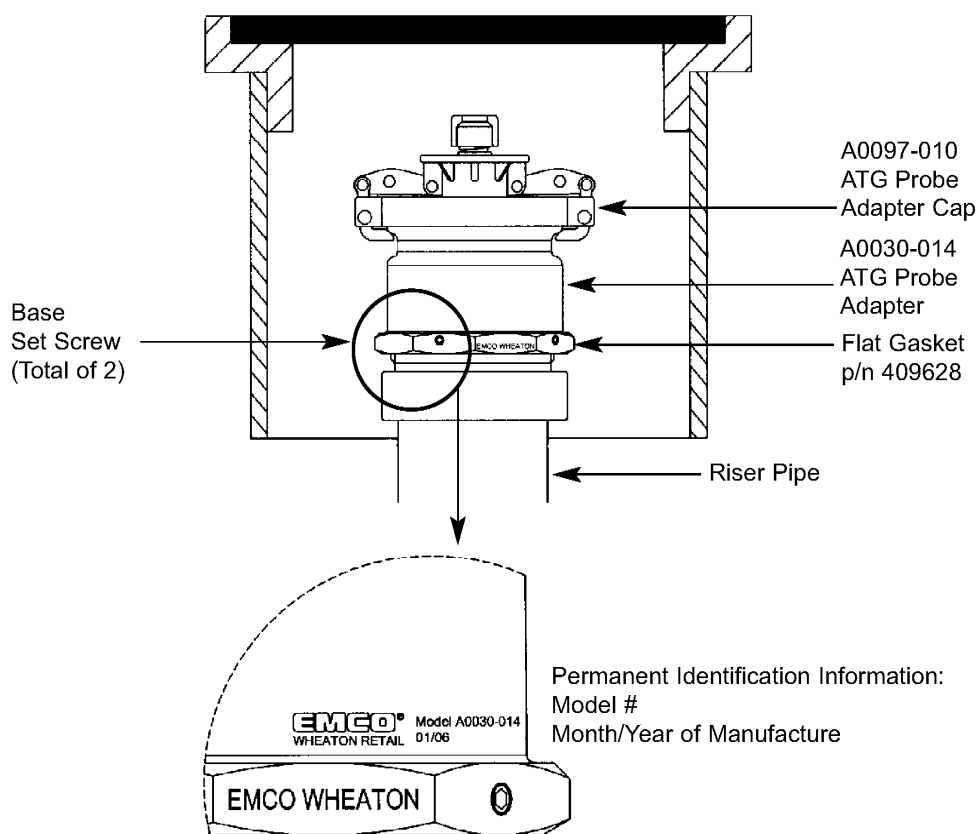
Figure H-1

Installation Instructions for Tank Gauge Port Adaptor

EMCO®
WHEATON RETAIL

A0030-014
ATG Probe Adapter

INSTALLATION INSTRUCTIONS



1. Using a 5/32" Allen wrench, remove both set screws from the base of the probe adapter.
2. The top edge of the riser pipe must be filed flat and square, with threads free of all debris to insure a proper sealing surface between the riser pipe and the base of the probe adapter.
3. Before installing the probe adapter, verify that the flat gasket is properly in place. Manually tighten the probe adapter on to the riser pipe to avoid cross threading. Using the Emco Wheaton Retail A0081-001C Adapter Wrench, torque the probe adapter between 60 ft-lbs. and 75 ft-lbs.

IMPORTANT: Do not use pipe thread sealant compound when installing the probe adapter.

4. Apply lock-tite model #222MS on both set screws. Re-install and torque to 20 in-lbs.

Figure H-1 (continued)

PREVENTIVE MAINTENANCE

Leak Tightness Integrity Test

1. Annually verify leak tightness integrity of the probe adapter by performing ARB test procedure TP-201.3.
2. If the probe adapter fails to meet the leak tightness integrity test requirements, replace the flat gasket p/n 409628.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. Meets ARB Cam and Groove Specifications.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893

252-243-0150 • 252-243-4759 (fax)

619-421-1743 (Technical Services, California)

p/n 568599

Rev. C, 06/06

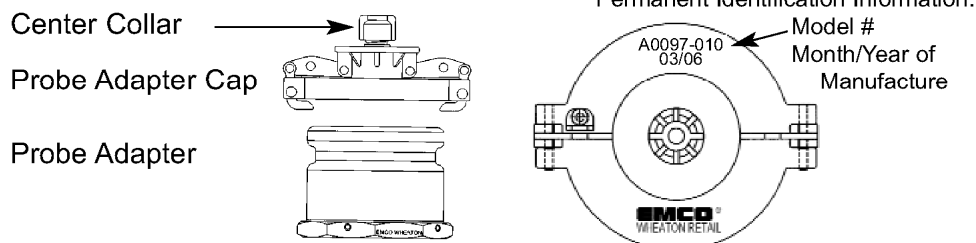
Figure H-2

Installation Instructions for Tank Gauge Port Cap

EMCO®
WHEATON RETAIL

A0097-010
ATG Probe Adapter Cap

INSTALLATION INSTRUCTIONS



1. Begin by feeding the signal cable of the ATG probe through the bottom of the ATG probe adapter cap. Secure the signal cable by tightening the leak tight connector nut.
2. Carefully place ATG probe adapter cap over the probe adapter and lock into place by pressing down on center collar.

PREVENTIVE MAINTENANCE

1. Annually verify that the gasket seal is installed and properly secured and is free of tears. If cap fails to comply, replace with new cap.

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. Meets ARB Cam and Groove Specifications.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty. The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation. Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation. **EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

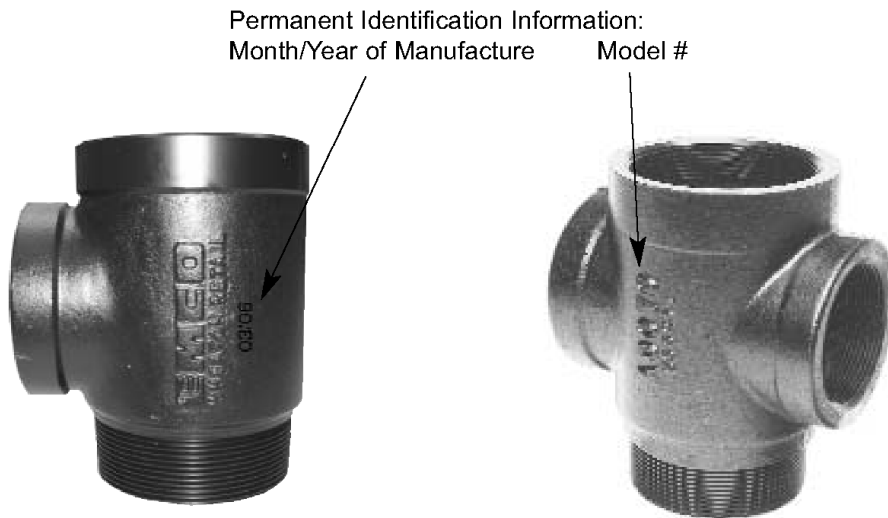
p/n 568598
Rev. C, 06/06

Figure I-1

Installation Instructions for Extractor Assembly

EMCO®
WHEATON RETAIL

A0079
Extractor Assembly



INSTALLATION INSTRUCTIONS

IMPORTANT: Do not use hacksaw to cut riser pipe.

1. Using a non-hardening, gasoline resistant pipe thread seal compound, fasten the Emco Wheaton Retail A0079 Extractor Assembly to the tank bung collar.
2. Manually fasten the Emco Wheaton Retail A0079 Extractor Assembly to the tank bung collar or riser pipe to avoid cross threading.
3. Torque the Emco Wheaton Retail A0079 Extractor Assembly between 100 ft-lbs. and 150 ft-lbs. using a standard chain wrench with a 1/2 inch off-set.

Figure I-1 (continued)

PREVENTIVE MAINTENANCE

1. None required

PERFORMANCE SPECIFICATIONS

This component was factory tested to, and met, the following specifications.

1. Complies with leakrate of 0.00 CFH @ 2.00 inches of water.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

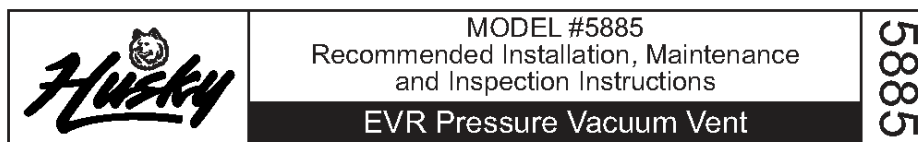
Emco Wheaton Retail Corp.

2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 569264
Rev. B, 06/06

Figure J-1

Husky 5885 Pressure/Vacuum Vent Valve



WARNING Designed for use at motor fuel dispensing facilities only.

INSTALLATION INSTRUCTIONS

NOTE: Always adhere to installation / usage instructions and warnings. Improper use may result in injury, damage or hazardous spill.

1. Remove the vent from the carton and visually inspect for any shipping damage.
2. Apply fuel resistant pipe sealant to the threads on the 2" vent stack.
3. Screw the Pressure Vacuum (P/V) vent onto the vent stack and tighten to a range of 20 to 50 ft-lbs with a suitable wrench.
4. DO NOT OVERTIGHTEN

TESTING / MAINTENANCE / INSPECTION

Testing Criteria Per TP201.1E and Exhibit 3 of applicable Phase 1 E.O.

Leak rate: Pressure = .05 CFH @ 2" wc, Vacuum = .21 CFH @ -4" wc.
Cracking Pressure = 2 1/2" to 6" wc, Vacuum = -6" to -10" wc.



*Annually Inspect the P/V
vent valve for foreign
objects:*

1. Remove the screws that hold on the top cover. Do not remove the screens.
2. Remove any debris from inside the lower cover.
3. Check the drain holes in the lower cover.
4. Reinstall the top cover.
5. Tighten the screws firmly.

- All drive aways, maintenance and inspection activities must be logged using the serial number of the individual product.
- Apply city, state, or federal testing regulations as appropriate.

**ANY TEST / INSPECTION
FAILURE REQUIRES IMMEDIATE
EQUIPMENT REPLACEMENT OR
REMOVAL FROM SERVICE.
MADE IN THE USA**

ALWAYS ADHERE TO INSTALLATION / USAGE INSTRUCTIONS AND WARNINGS.
 Improper use may result in injury, damage, or hazardous spill.

GENERAL WARNINGS / INSTRUCTIONS

- Use of equipment is at individuals' own risk.
- Always abide and adhere to city, state, and federal regulations regarding use and installation of dispensing equipment.
- Always follow the dispenser manufacturer's instructions.
- Always turn off all power to dispenser during maintenance and inspection activities.
- Always close the shear valves during maintenance and inspection activities.
- Always relieve pressure from system prior to performing maintenance activities.
- Always check continuity after installation using a megohmmeter (Refer to PEI RP 400 for details).
- Always replace or remove from service damaged or leaking dispensing equipment immediately.
- Always report leaks / spills / accidents to appropriate authorities.
- Always wear appropriate safety equipment during maintenance activities.
- Always have appropriate fire extinguishing equipment within 5 feet of dispensers.
- Always use pipe sealant approved for gasoline service.

- Always place containers on the ground before filling.
- Always discharge static electricity before using or servicing equipment by touching a metal part of the dispenser before and after fueling vehicle.
- Never smoke within 20 feet of dispensers.
- Never keep in service past recommended life.
- Never leave the nozzle unattended while dispensing fuel.
- Never use sparking or flaming devices within 20 feet of dispensers.
- Never use power tools near dispensers or to aid in the installation process.
- Never use cell phone within 20 feet of dispensers.
- Never reenter car when fueling vehicle.
- Never allow gasoline to touch eyes or skin.
- Never use at flow rates in excess of regulatory guidelines.
- Never use at flow rates less than 5 gallons per minute.
- Never dispense flammable material into unapproved containers.
- Never dispense fuel without a valid driver's license.

**CAUTION: DO NOT ALTER OR COVER
THE P/V VENT**

WARRANTY

VAPOR PRODUCTS – Husky Corporation will, at its option, repair, replace, or credit the purchase price of any Husky manufactured product which proves upon examination by Husky, to be defective in material and/or workmanship for a period of one (1) year of installation or fifteen (15) months from the manufacture date of shipment by Husky, whichever occurs first. The warranty period on repaired or replacement vapor recovery products is only for the remainder of the warranty period of the defective product.

CONVENTIONAL PRODUCTS – Husky Corporation will, at its option, repair, replace, or credit the purchase price of any Husky manufactured product which proves upon examination by Husky, to be defective in material and/or workmanship for a period of one (1) year from the manufacture date of shipment by Husky.

Buyer must return the products to Husky, transportation charges prepaid. This Warranty excludes the replaceable bellows, bellows spring assembly, spout assembly and scuff guard, unless (i) damage is obvious when the product is removed from shipping carton and (ii) the defective product is returned to Husky prior to use. This warranty does not apply to equipment or parts which have been installed improperly, damaged by misuse, improper operation or maintenance, or which are altered or repaired in any way.

The warranty provisions contained herein apply only to original purchasers who use the equipment for commercial or industrial purposes. There are no other warranties of merchantability, fitness for a particular purpose, or otherwise, and any other such warranties are hereby specifically disclaimed.

Husky assumes no liability for labor charges or other costs incurred by Buyer incidental to the service, adjustment, repair, return, removal or replacement of products. Husky assumes no liability for any incidental, consequential, or other damages under any warranty, express or implied, and all such liability is hereby expressly excluded.

Husky reserves the right to change or improve the design of any Husky fuel dispensing equipment without assuming any obligations to modify any fuel dispensing equipment previously manufactured.

TROUBLESHOOTING GUIDE


- | | |
|--------------------------------|--------------------------------|
| Pressure Decay Test Failure... | 1. Test vent to CARB TP201.1E. |
| | 2. Replace vent. |

For stations with ISD monitoring

- | | |
|---------------|---|
| Vapor leak... | 1. Verify other equipment is not the cause. |
| | 2. Test vent to CARB TP201.1E |
| | 3. Replace vent. |

- | | |
|---|-----------------|
| Exceeds allowable system cracking pressure... | 1. Replace vent |
|---|-----------------|

GENERAL TECHNICAL DATA

Fuel Type	Test and warranty for gasoline and diesel fuel
Body	Sand cast aluminum
Screens	Stainless Steel 40 mesh
Seal	Nitrile Foam
Covers	Aluminum
Weight	1.2 lbs
Threads	2" NPT
Case Quantity	20
Listings	CARB 
Patents	5,957,157

ACCESSORIES

Part #5041 3" to 2" Threaded Adaptor

Installation Procedure:

1. Visually inspect the o-ring and threads for chips, dirt & debris.
2. Apply fuel resistant pipe sealant to the 3" NPT threads of the vent pipe.
3. Screw the P/V vent adaptor onto the vent stack by hand.
4. Apply fuel resistant pipe sealant to the 2" NPT threads of the P/V vent adaptor.
5. Screw the P/V vent onto the adaptor and tighten to a range of 20 to 50 ft-lbs. with a suitable wrench. Do not overtighten.

Part #5426 Test Adaptor

NOTE: This adaptor is designed to fit on the inlet of the P/V Vent to allow for field and lab tests.

Installation Procedure:

1. Screw P/V Vent adaptor into the P/V Vent valve until hand tight. Make sure the seal is compressed.
2. Place the P/V Vent valve and adaptor on a flat surface.
3. Attach a 3/16" hose (Tygon fuel tubing) from test apparatus to hose barb on the side of the adaptor.
4. After testing, remove hose from barb and remove adaptor from vent.

Figure K-1

Installation Instructions for Adaptor O-Ring Kit

EMCO®
WHEATON RETAIL

494301
O-RING KIT

INSTALLATION INSTRUCTIONS



A0030-124S
Swivel Fill Adapter

Required Tools:

- Flathead screwdriver
- Torque wrench/20 in-lbs setting
- Petroleum jelly or gun grease
- Loctite #222MS

Emco Wheaton requires the use of the A0081-001C Adapter Wrench for installation and removal of the swivel adapters.



1. Using a flathead screwdriver, loosen and remove all three stainless steel screws from the swivel adapter.



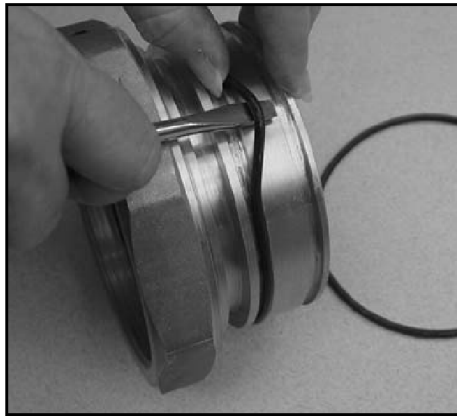
2. Separate the fill top from the base of the swivel adapter by slowly rotating and pulling upward.

Emco Wheaton Retail Corp.

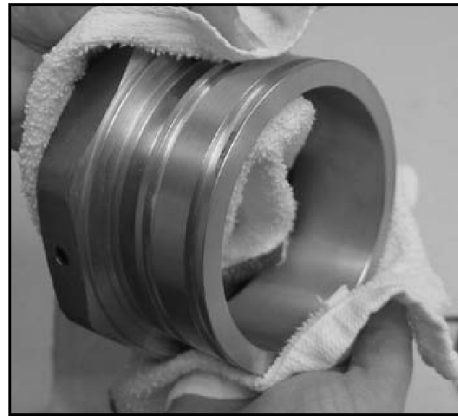
2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568903
Rev. B 06/0b

Figure K-1 (continued)



3. Remove both of the existing o-rings from the base of the swivel adapter.



4. Clean and remove all existing grease, dirt, debris, etc. from the outside of the base.



5. Clean and remove all existing grease, dirt, debris, etc. from the inside of the fill top.



6. Carefully reinstall a new set of o-rings onto the base and lubricate with petroleum jelly or gun grease.



7. Reassemble the swivel adapter by placing the fill top over the base. Rotate and push downward slowly until both pieces bottom out.



8. Apply a small amount of Loctite #222MS on each of the three stainless steel screws. Reinstall and torque to 20 in.-lbs.

Figure K-1 (continued)

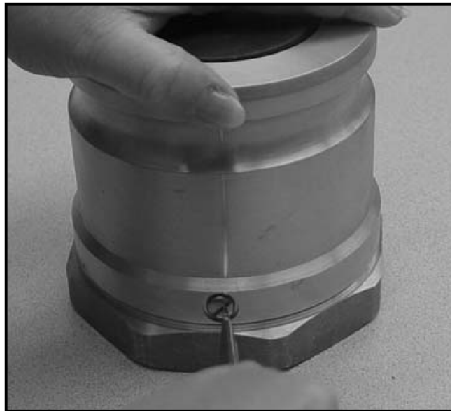


**A0076-124S
Swivel Vapor Adapter**

Required Tools:

- Flathead screwdriver
- Torque wrench/20 in-lbs setting
- Petroleum jelly or gun grease
- Loctite #222MS

Emco Wheaton requires the use of the A0081-001C Adapter Wrench for installation and removal of the swivel adapters.



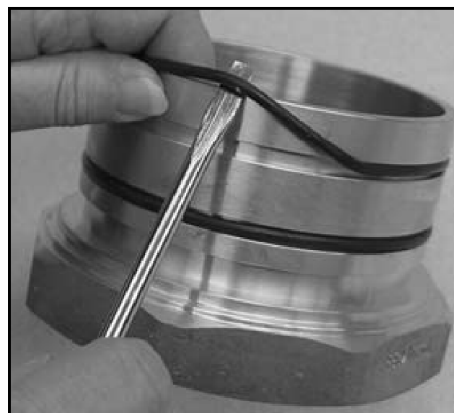
1. Using a flathead screwdriver, loosen and remove all three stainless steel screws from the swivel adapter.



2. Separate the vapor top from the base of the swivel adapter by slowly rotating and pulling upward.



3. Remove the poppet guide and poppet spring from within the vapor top of the swivel adapter.



4. Remove both of the existing o-rings from the base of the swivel adapter.

Figure K-1 (continued)



5. Clean and remove all existing grease, dirt, debris, etc. from the inside of the fill top and the outside of the base.



6. Carefully re-install a new set of o-rings onto the base and lubricate with petroleum jelly or gun grease.



7. Re-install the poppet guide and poppet spring onto the stem of the vapor poppet which is located inside the vapor top of the swivel adapter.



8. Reassemble by placing the vapor base over the vapor top. Push downward slowly until both pieces bottom out. Apply a small amount of Loctite #222MS on all three stainless steel screws. Reinstall and torque to 20 in.-lbs.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Figure K-2

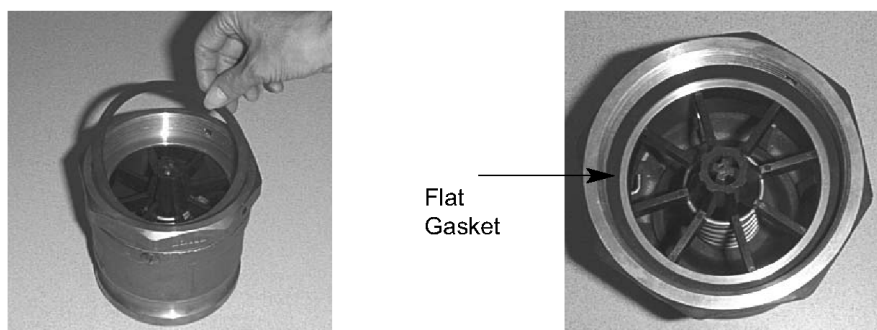
Installation Instructions for Adaptor Gasket Kit

EMCO[®]
WHEATON RETAIL

409628
Adapter Gasket Kit

INSTALLATION INSTRUCTIONS

For A0030-124S Swivel Fill Adapter, A0076-124S Swivel Vapor Adapter, and A0030-014 Probe Adapter



1. Remove existing gasket.
2. Add new gasket taking care to insure the gasket is properly secured.

IMPORTANT: Leave these installation instructions with the station owner and/or operator.

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture. Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty. The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation. Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation. **EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Emco Wheaton Retail Corp.
2300 Industrial Park Dr. • Wilson, NC 27893
252-243-0150 • 252-243-4759 (fax)
619-421-1743 (Technical Services, California)

p/n 568602
Rev. B, 06/06

Figure L-1

EMCO Wheaton Retail Installation and Maintenance Tools

EMCO®
WHEATON RETAIL

**EVR Phase I System
Installation and Maintenance Tools**



A0081-001C Adapter Wrench

Designed to install and remove Emco Wheaton Fill and Vapor Swivel Adapters. Octagonal bottom ensures tight positive seating of the fitting. 15/16" hex permits socket/torque wrench tightening.



494120 Riser Seal Wrench

Used to install and remove the center insert of the Emco Wheaton Riser Seal.



493820 Drain Wrench

Used to install and remove Emco Wheaton A1004 Spill Containment Drain Valve.



494241 Spill Containment Wrench

Used to install and remove Emco Wheaton A1004 Spill Containment.



494240 Swivel Adapter Torque Wrench

Used to verify the static torque of the swivel adapter in accordance to CARB test procedure TP.201.1B.



566675 Drill Fixture

Used to accurately drill the rivet holes on the top drop tube for the A1100 collar assembly.

Emco Wheaton Retail Corporation

04/04

2300 Industrial Park Drive • Wilson, North Carolina 27893 • 252-243-0150 • 252-243-4603 (fax) • www.emcoretail.com

Figure M-1

EMCO Wheaton Retail Warranty Card

WARRANTY POLICY

Emco Wheaton Retail Corporation products are warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months from the date of manufacture.

Emco Wheaton Retail Corporation shall, at its option, repair or replace that part which proves to be defective. This warranty is void unless the original purchaser returns the claimed defective item to Emco Wheaton Retail Corporation for inspection to determine whether the claimed defect is covered by this warranty.

The exclusive and sole remedy under this warranty is repair or replacement of the defective part. Emco is not responsible for claims for damage caused by improper installation or maintenance; corrosive fluids; misuse of the product or use the product for other than its intended purpose; or accident, acts of God, or natural phenomena. Emco will not pay for labor or related expenses, nor shall Emco be liable for any incidental, consequential or exemplary damages. This warranty is void if the Emco Wheaton Retail Corporation product has been previously repaired with parts not approved by Emco Wheaton Retail Corporation.

Emco Wheaton Retail Corporation warrants the workmanship and materials to be free of defects and will comply with the performance standards of California ARB CP-201 for a period of one (1) year from the date of installation or fourteen months from the date of shipment from Emco Wheaton Retail Corporation.

EMCO WHEATON RETAIL CORPORATION MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, (WHETHER WRITTEN OR ORAL), INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.


Figure N-1


FFS PV-Zero Pressure/Vacuum Vent Valve





PV-ZERO™
Liquid-Filled Pressure/Vacuum Vent Valve
FFS P/N 407215901


Installation, Testing
and Maintenance Manual


Warning  This symbol identifies a warning. A warning sign will appear in the text of this document when a potentially hazardous situation may arise if the instructions that follow are not adhered to closely. A potentially hazardous situation may involve the possibility of severe bodily harm or even death.

Caution  This is a caution symbol. A caution sign will appear in the text of this document when a potentially hazardous environmental situation may arise if the instructions that follow are not adhered to closely. A potentially hazardous environmental situation may involve the leakage of fuel from equipment that could severely harm the environment.

Danger  This symbol identifies an electrical danger. An electrical danger sign will appear in the text of this document when a potentially hazardous situation involving large amounts of electricity may arise if the instructions that follow are not adhered to closely. A potentially hazardous situation may involve the possibility of electrocution, severe bodily harm, or even death.

Warning  Follow all federal, state and local laws governing the installation of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage and/or environmental contamination.

Warning  Always secure the work area from moving vehicles. To help eliminate unsafe conditions, secure the area by using a service truck to block access to the work environment, or by using any other reasonable means available to ensure the safety of service personnel.

Warning  The PV-ZERO is used with tanks containing gasoline or other flammable substances, you may create an explosion hazard if you do not follow the requirements in this manual carefully.

Description of the FFS PV-ZERO Liquid Filled P/V Vent Valve

The PV-ZERO operates using a similar concept to a common P-Trap used in plumbing drain applications to create a liquid air seal. The liquid seals the UST ullage vapors from the atmosphere while still maintaining the proper differential pressure set-points. After the differential pressure has been exceeded, air or vapor bubbles through the liquid media until the pressure returns to the operational pressure settings. Figures 1-3 illustrate the operation of the PV-ZERO.

The PV-ZERO has no moving parts and the only maintenance required is periodic inspection of the liquid.

Because the PV-ZERO does not use seals or gaskets to seal off the UST ullage from atmosphere, the unit will not allow vapor or air to pass through at pressure less than the cracking set-point. As long as the valve is filled with 1.6 liters (54 ozs) of PV-ZERO fluid, the stainless steel valve housing is not damaged, and the pipe fittings are correctly installed, the unit should be leak free.

The liquid used for the PV-ZERO unit is silicone-based and has an very low vapor pressure and low toxicity.

The PV-ZERO can be mounted either at the top of the vent rack or in-line (mid-mount at working level). To avoid the risk of climbing a ladder and to maximize the simplicity of inspection and service, the preferred installation of the PV-ZERO is to be mounted in-line. It can be mounted on a single riser pipe or many riser pipes manifolded to a single line. The PV-ZERO is designed to mount on 3" riser piping, but can also be installed on 2" riser piping.

See drawings on pages 9-11 for mounting options.

*** Refer to CARB EVR documents regarding equipment rules for manifold systems.***

A support frame should be used for mounting all vent riser piping and must be used to stabilize the piping above the PV-ZERO if it is to be mounted in-line.

If the PV-ZERO is to be top mounted, the support frame must stabilize the piping below the unit (and the unit itself). Check local agencies for support frame requirements and consult a licensed structural engineer if in doubt of the structural integrity of the vent rack support system.

Note: Do not mount the PV-ZERO unit on a free standing vent piping system without a support frame!

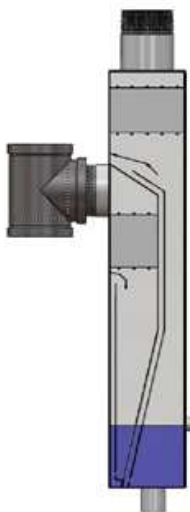


Figure 1: No Differential

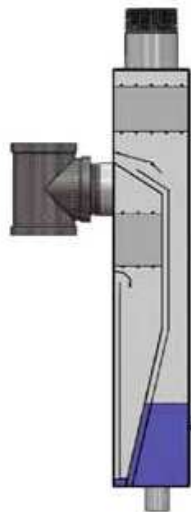


Figure 2: Positive Cracking

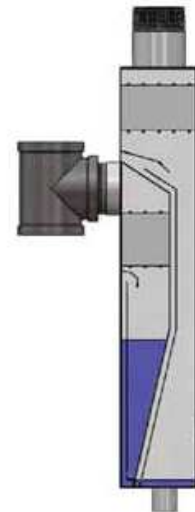


Figure 3: Negative Cracking

Installation

Note: Use a thread sealant that is approved for gasoline and gasoline-ethanol blends such as Gasoila Soft Set or Jomar Heavy Weight for all threaded pipe fittings and plugs. The 3" side tee and 1" bottom drain plug are factory installed. Tighten all fittings per recognized industry installation standards.

1. Thread the bottom of the 3" side tee onto the vent riser piping. The PV-ZERO may be mounted mid-line or top mounted on a single riser or a manifolded system (see drawings, pages 9 & 10). For 2" riser piping systems, use a 3x2" NPT reducing coupling with a 3" pipe nipple at least 6" long (see drawing, page 11).
2. Make sure the PV-ZERO unit is plumb within $\pm 3^\circ$ and not set at an angle. Failure to set in the vertical position may cause improper operation.
3. For mid-line mounting installations, install and secure the rest of the 3" discharge piping on the vent rack (refer to NFPA 30 for specific fuel system vent piping requirements). **Be sure to use a pipe wrench to counteract the tightening force to the valve!**
4. Fill the PV-ZERO unit through the side port with 1.6 liters (54 oz.) of PV-ZERO fluid (FFS p/n 407220001) provided with the unit. It may also be filled through the discharge outlet fitting (top). **Do not pour into the 3" side tee fitting!**

Note: To fill the fluid in the PV-ZERO, the UST (Underground Storage Tank) must be open to the atmosphere OR the inflatable test plug needs to be installed to reach the correct level. If the tank is under pressure or vacuum, the correct fill level cannot be obtained.

5. Install the side plug.
6. Perform the **Field Testing Procedure**.
7. Install the 3" pipe plug on top of the tee.
8. Attach the 3" upward-venting rain cap provided. Attach to the top of the vent pipe (mid-mount installation) or directly to the top of the PV-ZERO (top mount) **Keep the rain cap installed to minimize water intrusion, and to ensure proper operation.**

The PV-ZERO may be painted, however, do not paint over or cover the nameplate placards decals.

Field Testing

Note: Compliance testing of the PV-ZERO, if required by the local air quality district, shall be conducted in accordance with California Air Resources Board (CARB) test procedure TP-201.1E and Exhibit 2 of the Executive Order. This test shall be conducted using the PV-ZERO test cap assembly (FFS p/n 407225901) with the valve in its installed condition. The PV-ZERO can be tested without removing the unit from the vent rack.

There are (3) ports on the PV-ZERO test cap assembly (see page 8):

- 1 – Schrader valve connection for the inflatable plug
 - 1 – 1/4" hose barb (for pressure/vacuum supply)
 - 1 – 1/8" hose barb (for manometer)
1. Remove 3" pipe plug from top of tee (if necessary).
 2. Install the test cap assembly through the top of the 3" tee, allowing the inflatable plug to extend into the vent riser pipe - tighten fully.
 3. Inflate the inflatable plug to 35 PSI.
 4. Test per CARB TP-201.1E
 5. Deflate the inflatable plug.
 6. Remove test cap assembly from 3" tee.

Recommended Maintenance Intervals

- **Every year:** Visually inspect the housing, pipe, fittings, and rain cap for obvious signs of damage, missing parts, or fluid leaks.
- **Every year:** Visually inspect the rain cap, from ground level, for signs of bird nests or insect activity.
- **Every year:** Drain and inspect the fill fluid per the **Fluid Inspection Procedure**.

Fluid Handling

The PV-ZERO is filled with a silicone based fluid, p/n 407220001 (contact FFS for MSDS sheet). The PV-ZERO fill fluid is resistant to UV exposure, does not support bioactivity and is resistant to oxidation.

Since the PV-ZERO is exposed to tank ullage vapors, used PV-ZERO fill fluid may contain trace amounts of ethanol and gasoline. The maintenance technician servicing the PV-ZERO should wear appropriate eye protection and nitrile gloves when inspecting or servicing the fill fluid. Check with local and state regulations regarding handling, transportation, recycling and disposal of silicone based fluids.

Fluid Inspection Procedure

1. Remove the 3" NPT plug from the top of the side tee.
2. Remove the 3/8" NPT side plug.
3. Remove the 1" NPT bottom plug and drain the fluid into a clean, transparent container.
4. Visually inspect the fill fluid for debris or water contamination. Since the specific gravity of the fluid is slightly less than water, any water in the fluid will settle to the bottom. The fluid can be reused indefinitely as long as it is free of sediment and water.

Note: Clean fluid can be refilled into the valve and topped off with new fluid, or it can be completely replaced with new fluid.

5. Reinstall the 1" NPT bottom plug.
6. Refill the PV-ZERO valve with fluid through the side-port until it spills out of the port. This is the correct fill level of 1.6 liters (54 oz.).
7. Reinstall the 3/8" NPT side plug.
8. Perform the **Field Testing Procedure**
9. Reinstall the 3" NPT plug in the top of the side tee.

Only use the approved PV-ZERO fluid (P/N 407220001). Substitution of other fluids voids the warranty and can cause vapor leaks!

PV-ZERO Specifications

Height:	33.5"
Width:	5.0"
Length:	12.3"
Dry weight:	20#
Inlet piping connection	3" NPT
Discharge piping connection	3" NPT
Fill port	3/8" NPT
Drain port	1" NPT
Construction material	304 stainless steel
Fuel Compatibility	Gas & E85
Pressure leak rate	<< 0.05CFH at +2.0 W.C.
Vacuum leak rate	<< 0.21 CFH at -4.0 W.C.
Pressure drop at 60 cfm flow rate with tank positive pressure	14" W.C.
Pressure drop at 90 cfm flow rate with tank positive pressure	28" W.C.
Minimum operating temperature	-40°F (-40°C)
Maximum operating temperature	130°F (54°C)
Maximum test pressure	5 PSI
Maximum mounting angle deviation from vertical	3°

Drawing List:

Page	Drawing Description
6	PV-ZERO Operating Assembly
7	PV-ZERO Overall Dimensions
8	Test Cap Description
9	3" Manifolder Mid Mount
10	3" Mounting Assembly
11	2" Mounting Assembly

The drawings are on the following pages.

6

8

NOT PROVIDED

*** 3/2 NPT REDUCING COUPLING

1

7

NOT PROVIDED

*** 3" NPT NIPPLE (MIN OF 6")

1

6

407219001

3" NPT SQUARE HEAD PIPE PLUG

1

5

407218001

3" NPT TEE

1

4

407217001

PLUG BRASS 1"NPT

1

3

407154001

PLUG BRASS 3/8" NPT

1

2

80020301

TANK VENT ASSY 3"

1

1

407200901

PV-ZERO BODY ASSEMBLY

1

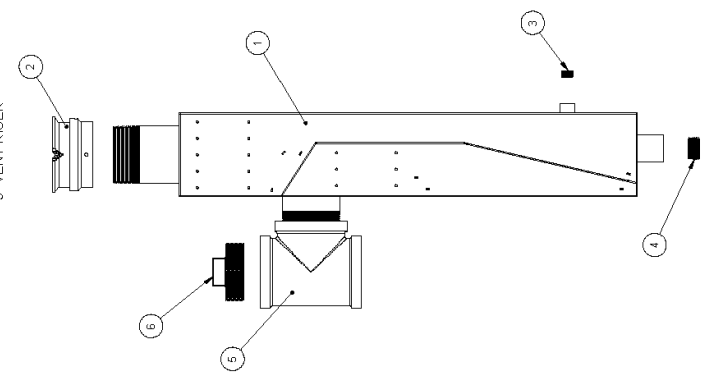
ITEM

PART NUMBER

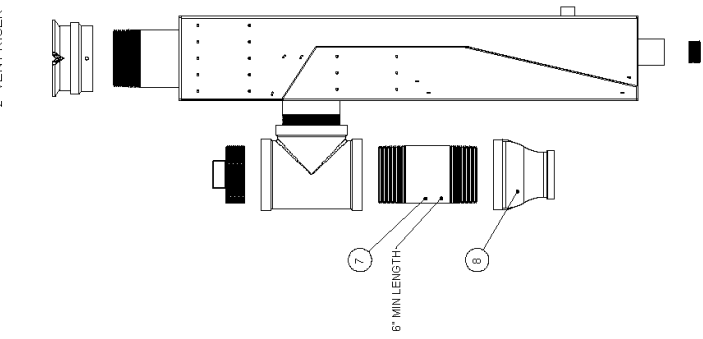
DESCRIPTION

REQD

3" VENT RISER



2" VENT RISER



1

ENGINEERING RELEASE

402055

KWJFK

11/14/08

DATE


REV

DESCRIPTION

ECN NO

BY

DATE

Franklin Fueling Systems
Madison, WI 53718

TITLE

PV-ZERO OPERATING ASSEMBLY

DO NOT SCALE DRAWING

XX ± .02

STANDARD INCH TOLERANCES

XXX ± .005

(UNLESS OTHERWISE SPECIFIED)

ANGULAR ± 1/2°

SPECIAL DIST.

APPROVAL

DATE

DATE

DATE

JFK

11/14/08

11/14/08

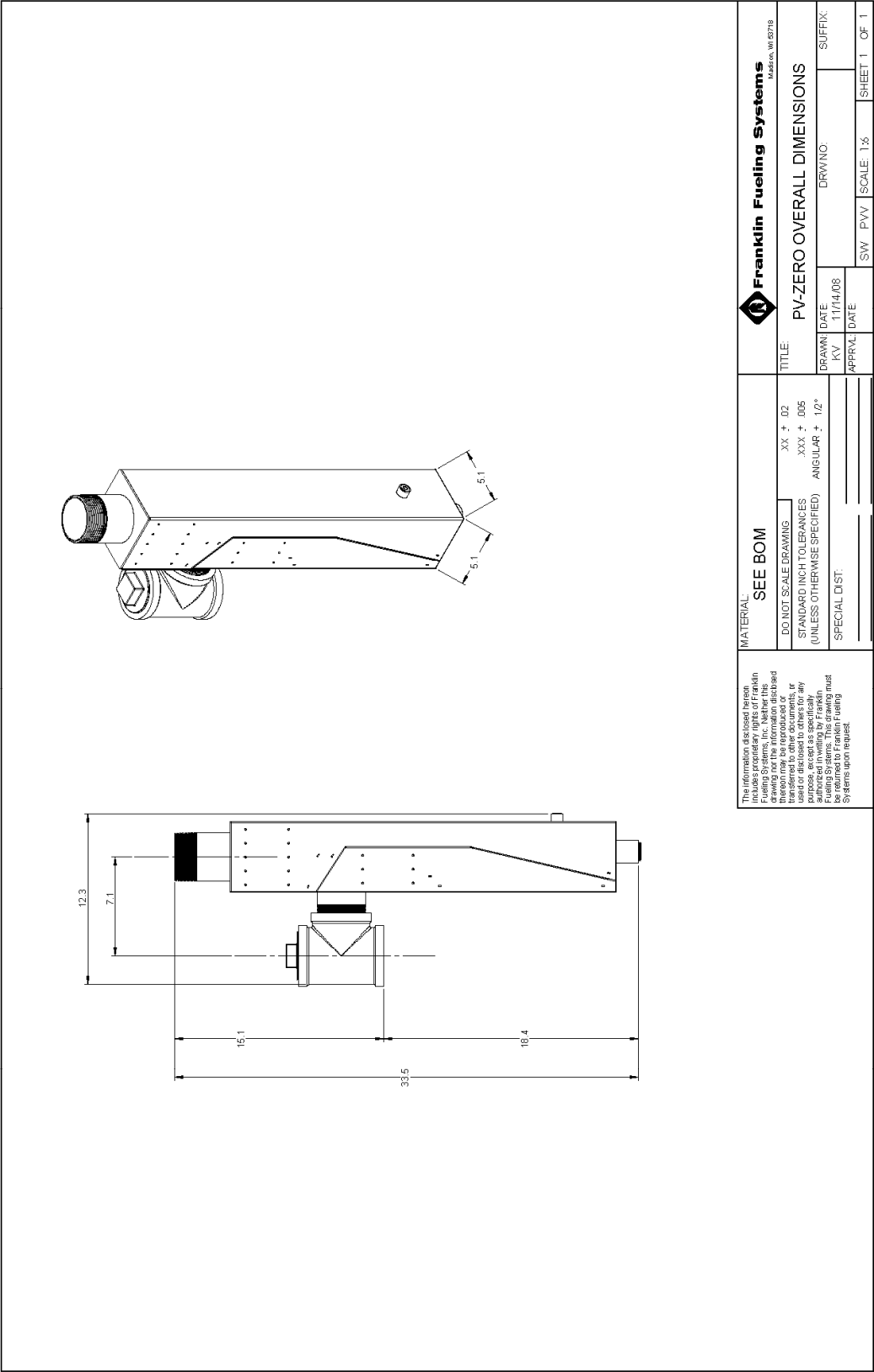
11/14/08

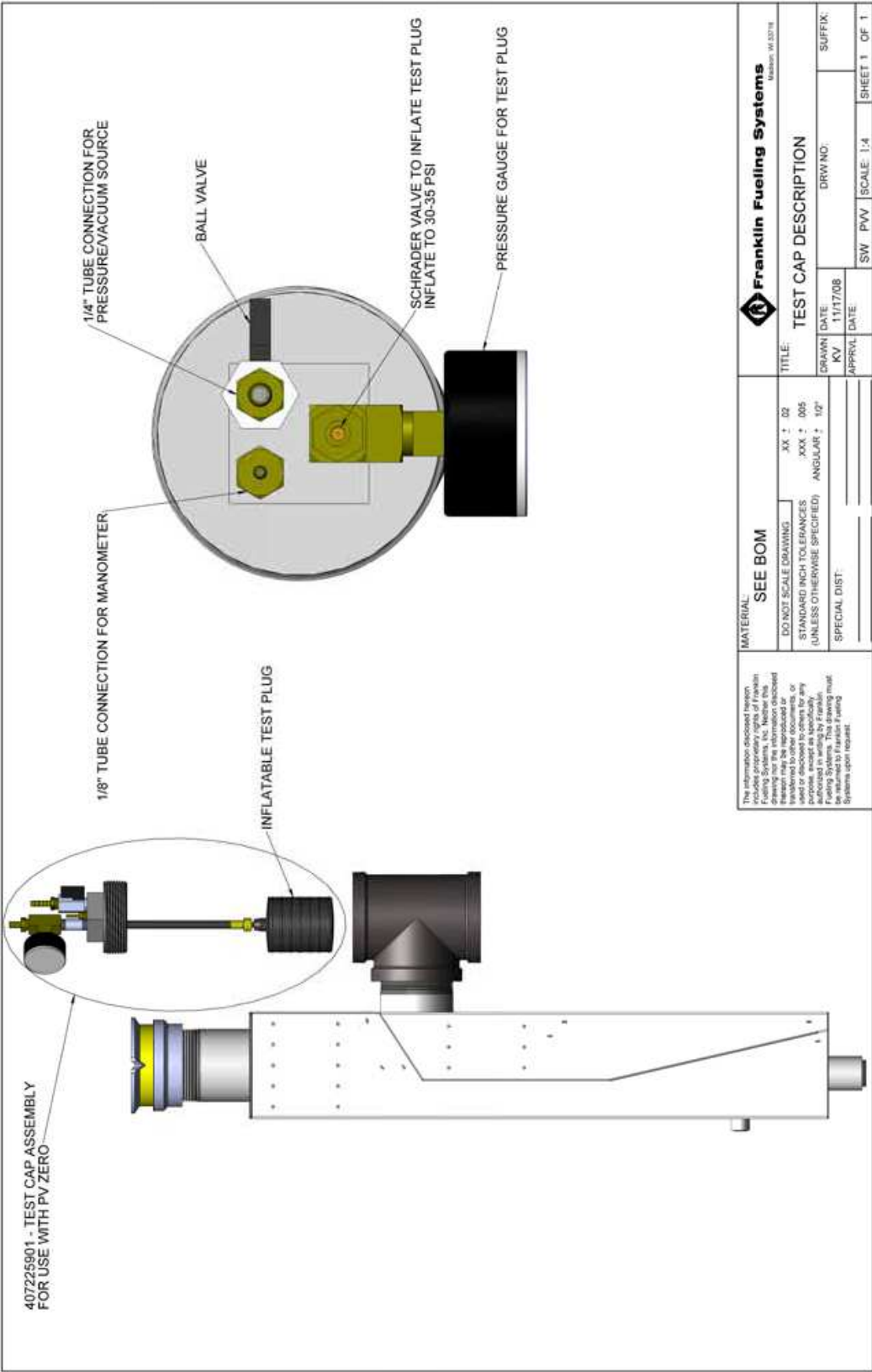
SW

PVV

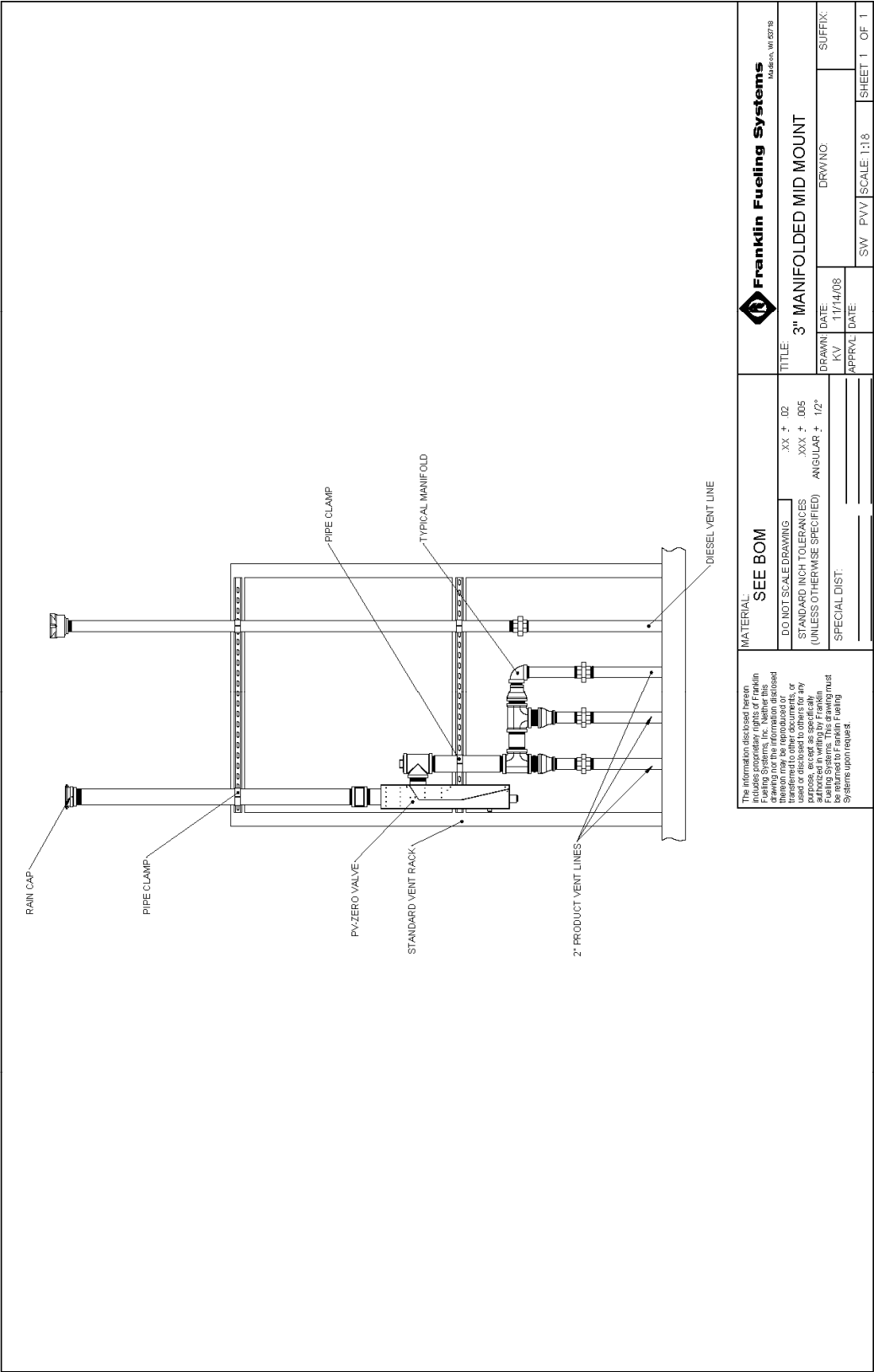
SCALE: 1&

SHEET 1 OF 1

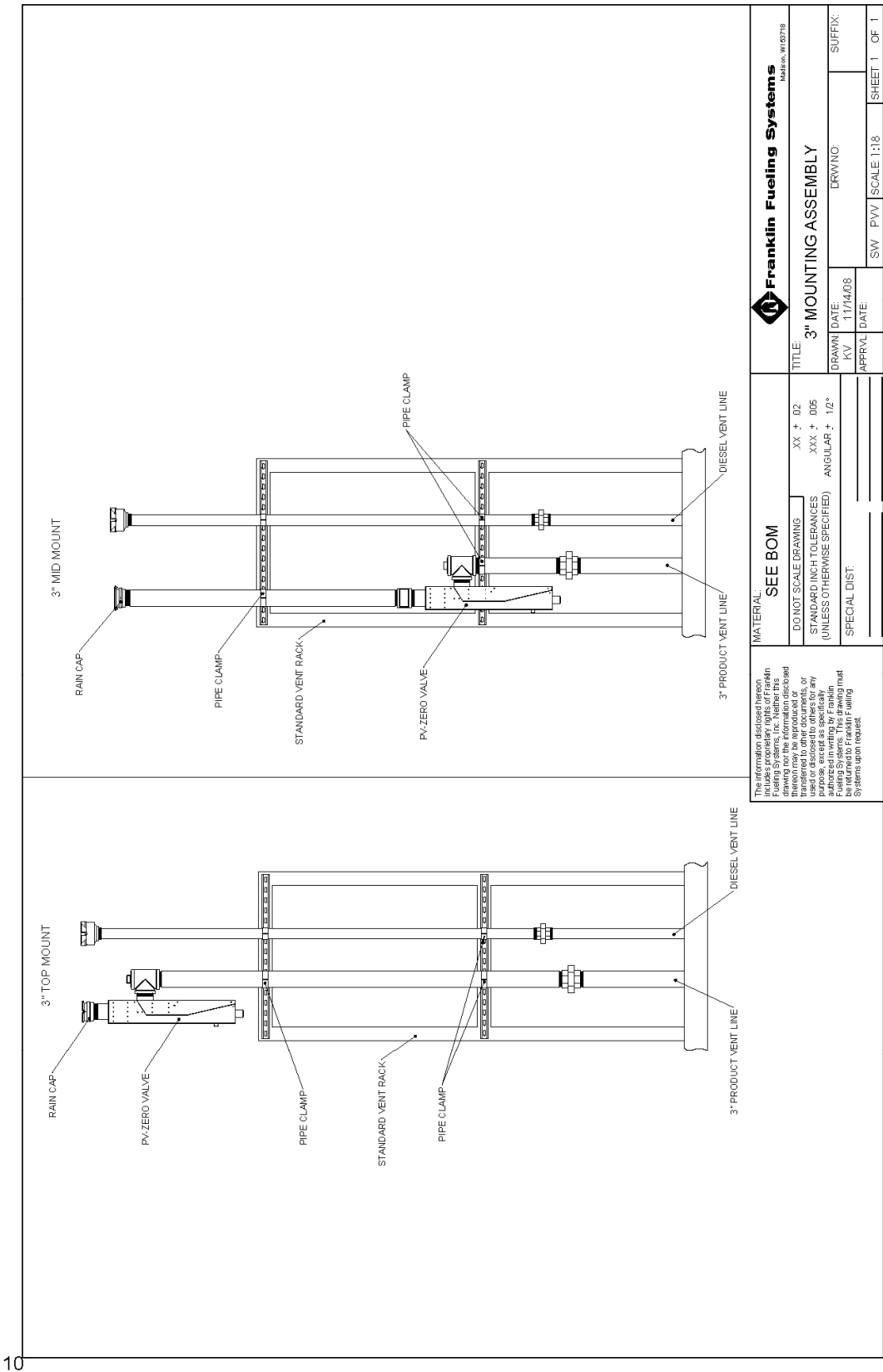




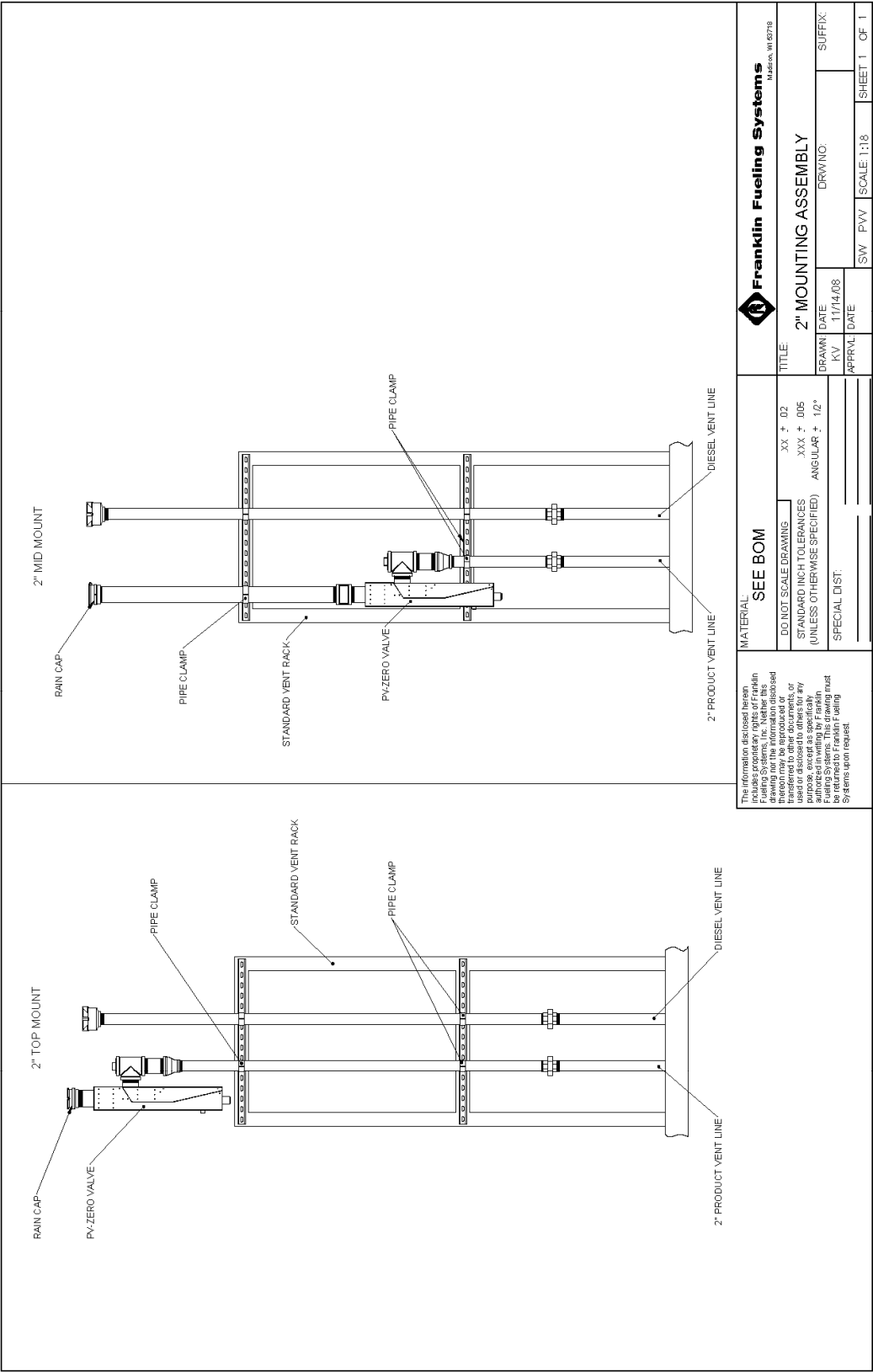
MATERIAL: SEE BOM		TITLE: TEST CAP DESCRIPTION	
DO NOT SCALE DRAWING	XX : 02	DATE:	SUFFIX:
STANDARD INCH TOLERANCES (UNLESS OTHERWISE SPECIFIED)	:XXX ± .005 ANGULAR ± 1/2°	DRW NO:	
SPECIAL DIST:		APPRV: [Signature]	
		DATE:	
		SW	PVV
		SCALE: 1/4	SHEET 1 OF 1



The information disclosed herein includes proprietary rights of Franklin Fueling Systems, Inc. and shall not be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Franklin Fueling Systems, Inc. This document is for informational purposes only and does not constitute an offer of any product or service. Franklin Fueling Systems, Inc. is not responsible for any errors or omissions in this document. This document is the property of Franklin Fueling Systems, Inc. and must be returned to Franklin Fueling Systems upon request.										<div><div><div></div><div>Franklin Fueling Systems</div><div>Madison, WI 53718</div></div></div>									
MATERIAL										TITLE: 3" MANIFOLDED MID MOUNT									
SEE BOM																			
DO NOT SCALE DRAWING										XX ± .02									
STANDARD INCH TOLERANCES (UNLESS OTHERWISE SPECIFIED)										XXX ± .005									
SPECIAL DIST.										ANGULAR ± .12°									
										DRAWN: DATE: 11/14/08									
										KV									
										APPROVAL: DATE:									
										SW PV									
										SCALE 1:18									
										SHEET 1 OF 1									



The information disclosed herein includes proprietary rights of Franklin Fueling Systems, Inc. and is not to be reproduced, stored in a retrieval system, or used or disclosed to others for any purpose, except as specifically authorized in writing by Franklin Fueling Systems. This drawing must be returned to Franklin Fueling Systems upon request.		MATERIAL SEE BOM		Franklin Fueling Systems Madison, WI 53718
DO NOT SCALE DRAWING STANDARD INCH TOLERANCES (UNLESS OTHERWISE SPECIFIED)		XX ± .02 XXX ± .005 ANGULAR ± 1/2°		TITLE 3" MOUNTING ASSEMBLY
SPECIAL DIST.		DRAWN DATE: KV 11/14/08		SUFFIX:
		APPROVAL DATE:		SW PVV SCALE 1:18 SHEET 1 OF 1





Franklin Fueling Systems

www.franklinfueling.com

3760 Marsh Road • Madison, WI 53718, U.S.A.

Tel: +1 608 838 8786 • Fax: +1 608 838 6433

Tel: USA & Canada 1 800 225 9787 • Tel: México 001 800 738 7610

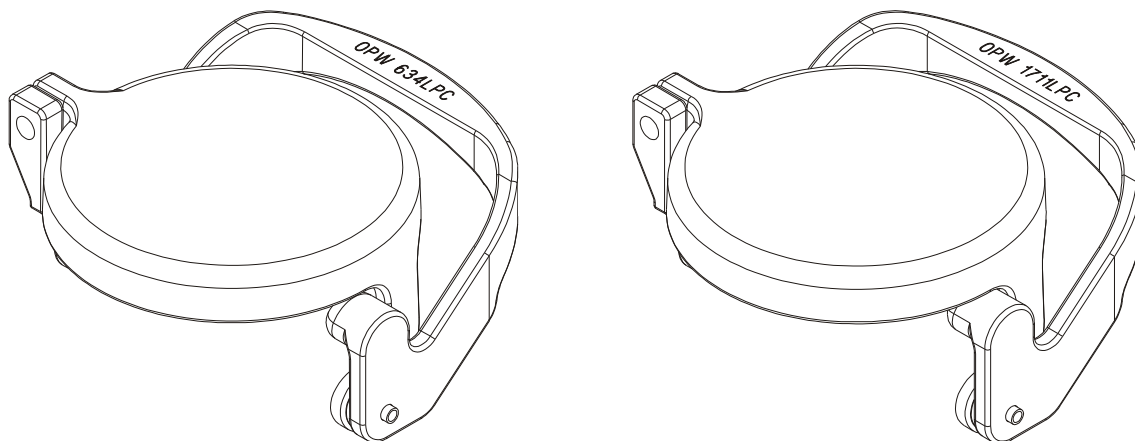
Franklin Fueling Systems GmbH

Rudolf-Diesel-Strasse 20 • 54516 Wittlich, GERMANY

Tel: +49-6571-105-380 • Fax: +49-6571-105-510

Figure O-1

OPW 634LPC (product) and 1711LPC (vapor) Dust Caps



Operation and Maintenance:

Annually inspect seal for nicks, tears or deformations. If required replace with OPW P/N: H15005M.

Standard Product Warranty

OPW warrants that products sold by it are free from defects in materials and workmanship for a period of one year from the date of manufacture by OPW (ECO products two years from date of manufacture.) Proof of purchase may be required. As the exclusive remedy under this limited warranty, OPW, will at its sole discretion, repair, replace, or issue credit for future orders for any product that may prove defective within the one year date of manufacture period (repairs, replacements, or credits may be subject to prorated warranty for remainder of the original warranty period, complete proper warranty claim documentation required.) This warranty shall not apply to any product that has been altered in any way, which has been repaired by any party other than a service representative authorized by OPW, or when failure is due to misuse, or improper installation or maintenance. OPW shall have no liability whatsoever for special, incidental or consequential damages to any party, and shall have no liability for the cost of labor, freight, excavation, clean up, downtime, removal, reinstallation, loss of profit, or any other cost or charges.

For any product certified to California 2001 standards, OPW warrants that product sold by it are free from defects in material and workmanship for a period of one year from date of manufacture or one year from date of registration of installation not to exceed 15 months from date of manufacture by OPW.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.



P.O. Box 405003 * Cincinnati, Ohio 45240-5003
1-800-422-2525 Domestically
513-870-3315 Internationally
www.opw-fc.com

Figure P-1

**CompX Security Products (CSP)
CSP1-634LPC (product), CSP2-634LPC (product),
CSP3-1711LPC (vapor) and CSP4-1711LPC (vapor)
Tank Commander Dust Caps**

Standard Product Warranty

CompX Security Products (CSP) warrants that products sold by it are free from defects in materials and workmanship for a period of one year from the date of manufacture by CSP. Proof of purchase may be required. As the exclusive remedy under this limited warranty, CSP will at its sole discretion, repair, replace, or issue credit for future orders for any product that may prove defective within the one year date of manufacture period (repairs, replacements, or credits may be subject to prorated warranty for remainder of original warranty period, complete proper warranty claim documentation required.) This warranty shall not apply to any product that has been altered in any way, which has been repaired by any party other than a service representative authorized by CSP, or when failure is due to misuse, or improper installation or maintenance. CSP shall have no

TANK Commander

liability whatsoever for special, incidental, or consequential damages to any party, and shall have no liability for the cost of labor, freight, downtime, removal, reinstallation, loss of profit, or any other cost or charges.

For any product certified to California 2001 standards, CSP warrants that product sold by it are free from defects in material and workmanship for a period of one year from date of manufacture or one year from the date of registration of installation not to exceed 15 months from date of manufacture by CSP.

This warranty is in lieu of all other warranties, express or implied, and specifically the warranties of merchantability and fitness for a particular purpose. There are no warranties, which extend beyond the description on the face hereof.



Copyright 2009 © CompX Security Products / 864.297.6655 / compx.com / PO Box 200, Mauldin, SC 29662
Any companies and/or products referred to herein are marks or registered trademarks of their respective companies, owners and/or mark holders.

Product Instructions

Remove existing dust cap OPW 634LPC, OPW 634TT-EVR, Morrison Brothers 305C-0100ACEVR, EBW 777-201-01, EBW 777-201-02, CNI Mfg. 64, OR EMCO Wheaton Retail A0097-005 and replace with appropriate TANK Commander dust cap; CSP1-634LPC, CSP2-1711LPC, CSP3-634LPC or CSP4-1711LPC. Make sure the handle lever is fully locked and the dust cap seal is engaged.

TuBAR TANK Commander: Insert key into stainless steel TANK Commander and rotate clockwise to retract locking bolt. Install stainless steel TANK Commander over the CSP1-634LPC product dust cap or CSP3-1711LPC vapor dust cap ensuring the lock body mounted in the sleeve fully engages the brass boss on top of the dust cap. Return the key to the 12 o'clock position and remove. The TANK Commander is now secured to the dust cap and should rotate freely.

TANK Commander

Padlock TANK Commander: Install stainless steel TANK Commander over dust cap spindle on CSP2-634LPC or CSP4-1711LPC; install padlock shackle through the spindle hole. Secure TANK Commander by locking the padlock; product should rotate freely.

Annually inspect dust cap seal for nicks, tears or deformations and replace if necessary. Installation of TANK Commander should not violate any (height) limitations exhibited in California Air Resources Board Executive Orders VR101-VR105. If the original Vapor Recovery System installation will not allow correct installation of TANK Commander then modification to the vapor recovery system is required (i.e. fill pipe height reduction) to maintain installation requirements.

Copyright 2009 © CompX Security Products / 864.297.6655 / compx.com / PO Box 200, Mauldin, SC 29662
Any companies and/or products referred to herein are marks or registered trademarks of their respective companies, owners and/or mark holders.

